PROJECT STUDY PLAN

ILLINOIS RIVER ECOSYSTEM RESTORATION, ILLINOIS

FEASIBILITY STUDY

Prepared by

U.S. Army Corps of Engineers

Rock Island District

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Executive Summary

This Project Study Plan (PSP) addresses the tasks, schedule, and budget for conducting the Illinois River Ecosystem Restoration, Illinois, Feasibility Study. The study is being accomplished under the authority of Section 216 of the Flood Control Act of 1970 in partnership with the State of Illinois Department of Natural Resources (DNR). As described in this document, the study is estimated to require 3-1/2 years to complete and cost $5.24 million, cost shared 50-50.

The study area encompasses the entire Illinois River Watershed. The study will identify the Federal and State interest in addressing problems related to the loss of backwaters and side channels due to sedimentation, destabilized tributary streams, changed hydrologic regimes and water fluctuations, and other impacts on the system caused by human activity.

For simplicity, the tasks are best viewed in major groupings. There are generally two types of efforts: (1) system evaluations focused on assessing the overall watershed needs and general locations for restoration, and (2) site-specific evaluations focused on developing detailed restoration options for possible implementation at specific sites. A final grouping of tasks relates to report preparation and processing.

The system and site-specific evaluations will investigate restoration opportunities falling into four focus areas:

1. Watershed Stabilization - Address tributary alterations and land uses, conservation easements, wetlands, water retention, riparian filter strips, and stream restoration.
2. Side Channel and Backwater Modification - Consider opportunities to restore habits in these areas, including off-channel deep water habitat, backwater lakes, side channels, constructing islands, etc.
3. Water Level Management - Evaluate options to reduce rapid fluctuations and naturalize flows.
4. Floodplain Restoration and Protection - Evaluate floodplain use, potential restoration of floodplain function, and value/potential for acquisition or conservation easements of some floodplain lands.

The system evaluations of these four areas will begin shortly after the study is initiated. Then, as the system needs and the most promising project locations are identified, efforts will begin on the site-specific evaluations. Due to cost and time limitations, only two to three specific sites will be developed in detail during the study. If greater system needs are identified, then a larger list of potential improvements would be prepared and recommended for authorization based on a lesser level of detail. The final report may recommend an ongoing program (continuing authority) to address any larger list of restoration projects using selection criteria/formulation framework developed as part of the feasibility study.

An attached schedule lays out the general timeframes and relationship of the study tasks. The study will produce two major products—an assessment of overall system/watershed needs including a list of potential restoration projects and prioritization framework, and secondly detailed restoration assessments and plans for two to three specific sites.

The study will present results in report form at two major points. First, an interim report will be prepared in October 2001, documenting system needs as defined by the first phase of the

restoration needs assessment (RNA), water level management analysis, and floodplain restoration evaluation for consideration in the Water Resources Development Act (WRDA) of 2002. The second and main report of the study will be the Feasibility Study and Environmental Impact Statement. This document will summarize the entire system and site-specific study efforts.

Descriptions of Major Efforts (See attached timeline for schedule of these items.)

- ***System Evaluations***

  - ***Water Level Management Analysis:*** To address the water level management focus area, an evaluation will be conducted looking at potential refinements in management related to operations of Corps of Engineers dams, Greater Chicago Metropolitan Water Reclamation District (MWRD), Lake Michigan Diversions, and tributary streams. This analysis will focus on identifying opportunities to more closely replicate the natural hydrologic regime. In addition, opportunities for pool drawdowns will be explored for two pools.

  - ***Floodplain Restoration and Protection Analysis:*** To address this focus area, an evaluation will be conducted of floodplain management options, including increased management, removal, setback, or potential acquisition of some leveed areas.

  - ***Restoration Needs Assessment (RNA):*** This effort will focus primarily on addressing issues related to the watershed stabilization and side channel and backwater modification focus areas. The RNA is a two-phase assessment evaluating the system-wide restoration needs in the Illinois River Watershed and along tributaries. The first phase will focus on evaluating priority watersheds and areas, and the second phase will be extended to the rest of the watershed.

  - ***Potential Projects List and Prioritization Framework*:** As a product of the system evaluations, particularly the RNA, a list of potential restoration projects will be developed. Like the RNA, this list will be developed in two phases. In addition to the list, a prioritization framework will be developed to assist in ranking the restoration projects.

  - ***Interim Report on System Needs*:** Based on the initial system evaluations, the first phase of the RNA, and the initial list of potential projects, an interim report will be prepared that documents system needs.

- ***Site-Specific Evaluations***

The site-specific effort will begin when system efforts are substantially complete. Plan formulation evaluations will draw on the system evaluations and expert evaluations to select two to three of the most promising sites. Then alternative restoration plans will be developed and evaluated for these sites using cost effectiveness and incremental cost evaluations. Based on this analysis, a preferred option for each site will be selected and detailed designs will be initiated.

- ***Report Preparation***

The final phase of the study involves pulling together the system and site-specific efforts into a single Feasibility Report and Environmental Impact Statement. Steps in this process include

drafting the report, independent technical review, public review, finalizing the report, and issuing the public notice.

In summary, this study will determine if there is a Federal and State interest in implementing restoration projects. If there is a Federal interest, the study also will define the general system/watershed needs, methods to address those needs, a list of potential projects, and a prioritization framework, and finally will assess and develop detailed designs for the first two to three specific sites.

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I. Introduction

This document is the Project Study Plan (PSP) for Ecosystem Restoration of the Illinois River, Illinois. It was prepared in accordance with U.S. Army Corps of Engineers guidance contained in Engineering Circular (EC) 1105-2-208 and Engineering Regulation (ER) 1105-2-100. The PSP was developed by the Rock Island District of the U.S. Army Corps of Engineers and the Illinois Department of Natural Resources (non-Federal sponsor) and will be modified based on negotiations with both sponsors for the study.

The PSP details the scope, schedule, and budget for feasibility study tasks as well as the division of responsibilities for accomplishment by the Rock Island District, the Illinois Department of Natural Resources, and respective consultants and contractors. A detailed work description, cost-summary table, and preliminary schedule outlining the initiation and completion of tasks by the Rock Island District and the sponsor(s) are included in the PSP.

The purpose of the PSP is to present a plan for investigating ecosystem restoration opportunities within the Illinois River Watershed in Illinois, and to ensure timely and economical completion of a Feasibility Report. The Feasibility Report will address system evaluations of the need for ecosystem restoration measures in the watershed. If a need is demonstrated, two to three cost-effective site-specific projects will be developed, as part of the recommended plan, to sufficient design detail such that they could proceed to the detailed engineering and design phase upon approval by the Army Corps of Engineers Mississippi Valley Division and Headquarters. If greater system needs are identified, a larger list of potential improvements for the watershed would be prepared and recommended for authorization based on a lesser level of detail as part of an ongoing restoration program. The report is to be a complete decision document that presents the results of the Reconnaissance and Feasibility Study phases. Opportunities for the submission of an interim report will be identified as necessary to assure timely implementation of necessary restoration.

II. Reconnaissance Overview

The purpose of the expedited reconnaissance study was to:

(1) Determine if there was a potential Federal interest consistent with Army policies, costs, benefits and environmental impacts in restoring fish and wildlife habitat; in reducing sedimentation impacts to the fish and wildlife habitat in the Illinois River; and in providing opportunities in water and related land resources projects and planning services within the Illinois River Watershed;

(2) Prepare a Project Study Plan; and

(3) Assess the level of interest and support from non-Federal entities in cost sharing for the feasibility phase and project construction. Specific attention was given to identifying

opportunities to restore degraded ecosystem structures and functions, including the ecosystem's hydrology and plant and animal communities, to a less degraded condition.

The Reconnaissance Report identified both Federal and non-Federal interests in implementing ecosystem restoration projects and recommended continuation to the Feasibility Phase. Ecosystem restoration projects are defined as high priority outputs in the Administration's budget policy. Within the Civil Works program, priority is given to restoration projects that restore degraded ecosystem structures and functions, including the ecosystem's hydrology, plant and animal communities, to a less degraded condition. The principal problems impeding the restoration of aquatic and associated fish and wildlife habitat in the Illinois River Basin are the loss of backwaters and side channels due to sedimentation, destabilized tributary streams, changed hydrologic regimes and water fluctuations, and other impacts upon the system caused by human activity. Ameliorating these problems within the watershed is a critical need that is within the Federal interest and appropriate for Corps of Engineers involvement.

Accordingly, the selected restoration efforts identified during the reconnaissance study and in the *Integrated Management Plan for the Illinois River Watershed* are consistent with Federal law, regulation, and policy. No adverse environmental impacts are anticipated from any of the proposed actions. The preliminary analysis conducted during the reconnaissance phase indicates that the ecological benefits of restoration activities will exceed project costs, that restoration measures are technologically feasible, and that they can be accomplished collaboratively with other State, Federal, and local entities in a cost-effective and efficient manner.

A. Study Authority

The Illinois River Ecosystem Restoration Study is being carried out under the Corps of Engineers' General Investigations (GI) Program. The study was initiated pursuant to the provision of funds in the Energy and Water Development Appropriations Act, 1998. The study was authorized by Section 216 of the 1970 Flood Control Act, which reads:

> *The Secretary of the Army, acting through the Chief of Engineers, is authorized to review the operation of projects the construction of which has been completed and which were constructed by the Corps of Engineers in the interest of navigation, flood control, water supply, and related purposes, when found advisable due to significant changed physical or economic conditions, and to report thereon to Congress with recommendations on the advisability of modifying the structures or their operation, and for improving the quality of the environment in the overall public interest.*

Under this authority, an Initial Appraisal entitled, *Illinois Waterway System Ecosystem Restoration and Sedimentation, Illinois*, was prepared and approved in August 1996. The conclusions from this appraisal were that significant changes to the physical and economic conditions have occurred in the Illinois River since the navigation projects were built and that there is an opportunity for improving the quality of the environment. According to the Initial Appraisal,

> *…Substantial evidence exists indicating significant physical and economic changes have occurred in the study area. The significance of the resources and of the changes experienced indicates the necessity to further evaluate the sedimentation and degradation of the system and to identify ecosystem restoration efforts which could address these issues. Based on this information, I recommend undertaking a reconnaissance study under Section 216 of the 1970 [FCA] authority.*

The Rock Island District of the U.S. Army Corps of Engineers received $100,000 in Federal Fiscal Years 1999 and 2000 to conduct the reconnaissance phase of study and to develop a Project Study Plan for the feasibility phase.

B. Location of Study Area

The Illinois River is part of the Illinois Waterway System. The Illinois Waterway System is comprised of the Chicago Sanitary Ship Canal, the Calumet Sag Channel, the Illinois-Michigan Canal, and the Chicago, Des Plaines, Kankakee and Illinois Rivers, and extends from Lake Michigan at Chicago, Illinois, to the Mississippi River at Grafton, Illinois—a distance of approximately 327 miles. The Illinois River, draining 40 percent of the State of Illinois, begins at approximate River Mile 272.0 of the Illinois Waterway System, just upstream of Dresden Island Lock and Dam. The study area encompasses this entire watershed which encompasses approximately 30,000 square miles (see map in Appendix A).

The Illinois River is either 270 or 327 miles long, and it may or may not be considered to lie entirely within the boundaries of Illinois. These discrepancies arise because the river has had several incarnations. Geographically, it begins at the point where the Des Plaines, Du Page, and Kankakee Rivers converge near the Will and Grundy County lines; that river flows for a distance of 270 miles, ultimately entering the Mississippi at Grafton, about 40 miles north of St. Louis.

The Illinois is a working river with a working title, the "Illinois Waterway." In that form, it extends all the way to Lake Michigan through the Des Plaines and Chicago Rivers. With this added length, the Illinois Waterway spans 327 miles from Lake Michigan to its confluence with the Mississippi.

From its headwaters, whether they are considered to be at Lake Michigan or farther inland, the Illinois River winds southwest through northern Illinois. Along this stretch, known as the "upper Illinois," currents are swift because the river flows down a fairly steep incline through a narrow, younger valley.

The upper river flows to Hennepin in Putnam County, where it encounters the "Great Bend." This point marks the beginning of the middle river. Here the Illinois turns southward and flows past Peoria to Beardstown in a gentle gradient through a broad, shallow valley 3 to 6 miles wide that was once occupied by the Mississippi River.

The banks along this stretch of the Illinois are lined with dozens of lakes and backwaters that were originally carved out of the land by erosion and deposition processes. When the river overflowed, its sediment-laden waters cut crevices through the riverbanks. As the waters escaped through these crevices, they created side channels, sloughs, swamps, and other backwater wetlands, so that the river valley resembled a boundless marsh. When dams were built in the river in the 19th century, many of these backwaters and wetlands were filled and formed as many as 300 long, narrow backwater or bottomland lakes.

In the 20th century, the natural sedimentation processes that formed the backwater wetlands have been altered and accelerated by human activities such as agriculture, levee building, and urbanization. These activities have set the stage for the virtual extinction of the wetlands and lakes along the middle river, which are now being filled with sediment. As of 1995, sedimentation had reduced their average depth to only a few feet.

The lower river, extending from Beardstown to Grafton, was once rich with backwaters, but levees erected early in our century adversely impacted the majority of the natural lakes and wetlands along this stretch. Thus, only about 53 backwater lakes now survive along the full length of the river, and the floodplain of the Illinois River is now little more than 200,000 acres, about half its size 100 years ago. Although the Illinois River Valley was once almost entirely wetlands, actual water surfaces now account for only 60 to 100 square miles (40,000 to 70,000 acres).

The Illinois River Basin encompasses some 30,000 square miles, covering 44 percent of the land area of the state and including more than a dozen tributaries of the main river. About 1,000 square miles of the watershed extend into Wisconsin with the upper portions of the Fox and Des Plaines Rivers, and another 3,200 square miles extend into Indiana with the Kankakee and Iroquois Rivers. The Illinois River Basin includes 46 percent of the state's agricultural land, 28 percent of its forests, 37 percent of its surface waters and streams, and 95 percent of its urban areas.

C. Statement of Problems and Opportunities

The principal problem impeding the restoration of aquatic and associated fish and wildlife habitat in the Illinois River Basin is the loss of backwaters and side channels due to sedimentation, destabilized tributary streams, changed hydrologic regimes and water fluctuations, and other impacts upon the system caused by human activity.

Opportunities include:

- Assessing the overall restoration needs of the Illinois River Watershed.
- Addressing restoration of ecosystem function, structure, and dynamic processes to the nationally recognized Illinois River system. Helping to restore a naturalistic, functioning, and self-regulating system and protecting critical resources from further degradation.
- Developing projects in the context of broader system/ecosystem or watershed level. Considering the interrelationships of plant and animal communities and their habitats in a larger ecosystem context (health, productivity, and biological diversity).
- Incorporating an adaptive management approach to restoration efforts considering the interconnectedness of water and land, dynamic nature of the economy and environment, and need for flexibility in the formulation and evaluation process.
- Developing watershed or sub-watershed management plans identifying the combination of recommended actions to be undertaken by various potential stakeholders.
- Collaborating in partnership with other governmental agencies, organizations, and the private sector.
- Producing benefits consistent with the North American Waterfowl Management Plan, Clean Water Action Plan, Mississippi River/Gulf of Mexico Watershed Nutrient Task Force, and Brownfields Cleanup and Redevelopment Initiative.
- Providing ancillary recreational benefits.

D. Without-Project Condition

Despite considerable historic degradation, it should be noted that there have been improvements to the overall health of the Illinois River system in the past few decades. This has been primarily due to progressively improving water quality, based on individual and cooperative monitoring, improved treatment, and enforcement efforts by State and local agencies such as the Illinois Environmental Protection Agency, the Metropolitan Water Reclamation District of Greater Chicago, the Illinois State Water Survey and Natural History Survey, and the Illinois Department

of Conservation. Many of their efforts have concentrated on the water quality issues of the upper Illinois River. Water quality has been degraded since roughly the turn of the century when the Sanitary Ship Canal and diversions from the Great Lakes began moving wastewater from the Chicago area down the Illinois River. Since the implementation of the Clean Water Act, reports concur that the waters of the Illinois, as well as the sediments, all showed considerable improvement between 1972 and 1979. Statewide, the percentages of waters ranked "poor" declined, while those ranked "good" increased. More extensive improvements were reported in 1982, and 1990 figures showed that only a small portion of the Illinois Waterway remains in "poor" condition. In fact, concentrations of total suspended solids and harmful substances such as dissolved barium, manganese, and boron all declined on the upper Illinois and Des Plaines Rivers between 1977 and 1989.

While water quality is not a primary Corps of Engineers mission per se, water quality does have direct effects on fish and wildlife habitat and it is expected that water quality and its associated effects will continue to improve due to increased water treatment and local actions. Only recently the fish populations have shown improvements and increases in the main river channel.

However, despite the improvements in water quality, many of the resources along the Illinois River remain limited and are anticipated to remain degraded or decrease in value over time unless actions are taken.

Aquatic vegetation has not fared well along the Illinois River. The last coontail, longleaf and sago pondweeds, and wild celery have all but disappeared from the Starved Rock pool. Despite clearer waters along many stretches of the river, efforts to rejuvenate various species are as yet isolated. While the reasons for the extreme decline of aquatic vegetation in and along the Illinois River are not yet fully understood, they may be attributed to various combinations of water level fluctuations and sedimentation, resulting in unconsolidated sediments and turbidity, a condition anticipated to continue into the future.

The river's backwaters and side channels have also not fared well. Recent studies have shown that backwater lakes along the Illinois River have lost roughly 70 percent of their 1903 volume. Since the 1950's these shallow, serene waters have suffered from the mounting pressures of sedimentation, which has introduced oxygen-consuming sediments and organic contamination. As a result, backwater habitats continue to decline, and fish populations have not improved as markedly as they have in the main stem of the river.

Fish populations are most successful in the backwaters if: (1) the backwater lake is closely connected to the river, and has areas of adequate depth during critical overwintering or reproductive periods; (2) inflow to the backwater lake comes from sources other than the river, ensuring good water quality; (3) the backwater lake bottom is sufficiently stable, ensuring clear water in which fish can feed, build nests, and reproduce, and in which aquatic vegetation can grow; and (4) food and aquatic vegetation are available. It is expected that the without-project condition will continue to allow sedimentation and the filling of backwaters. This will decrease the amount and quality of available habitat if nothing is done.

Freshwater mussels have been greatly impacted by changed conditions as well. In particular, pollution, commercial harvest, and habitat alteration earlier in the century all but eliminated mussels from the upper valley. Only recently with improved water quality have mussel numbers begun to rebound in the upper river. However, numbers continue to decline in the lower river, and the introduction of the invasive zebra mussel further threatens the future of these native mussels.

Just as the loss of the Illinois River Valley's aquatic vegetation, filling of backwaters, and loss of macroinvertebrates have affected fish populations, so too has it affected migrating waterfowl populations. The crustaceans and aquatic insects that live among the plants, as well as the plants themselves, form the major part of the diets of several species of ducks.

Diving ducks in particular have been drastically affected by the loss of food supplies, and increasingly fewer birds are using the river valley as a migratory stop. Peoria Lake, once the scene of the greatest autumnal concentration of diving ducks in Illinois, now attracts relatively few of them.

The loss of food supplies, particularly fingernail clams in the 1950's, caused major declines among lesser scaup, ring-necked, canvasback, and ruddy duck populations. The tiny mollusks had once constituted a significant portion of the diets of these diving ducks, while aquatic and moist-soil vegetation was used as a supplement. With the loss of both the fingernail clams and the aquatic vegetation, many diving duck species shifted their migration path to the Mississippi Valley. At the same time, high water levels that submerged mudflats along the middle river's backwaters during the 1940's and 1960's forced thousands of dabbling ducks and species such as widgeon and gadwall to leave the valley in search of moist-soil vegetation elsewhere.

Habitat for the river's organisms has been degraded by a combination of problems: sedimentation; land use changes; urban, industrial, agricultural, and domestic pollution; and water-level fluctuations. All of these factors affect habitat, beginning with those organisms at the base of the food chain. Until these conditions are reversed substantially, it is unlikely that the Illinois River will support significantly larger populations of migratory waterfowl, fish, mussels, and macroinvertebrates.

E. Alternatives to be Considered in the Feasibility Study

As identified in the Reconnaissance Study, the Feasibility Study will identify opportunities to implement ecosystem restoration within the entire Illinois River Watershed. Recommendations presented in the State of Illinois' *Integrated Management Plan for the Illinois River Watershed* will be evaluated to determine if there is a Federal interest in their implementation. Due to the large size of the study area and broad scope, it will be necessary to first evaluate the entire system using available data and then, based on the overall analysis, to identify specific focus areas for actual restoration project implementation. In order to accomplish this analysis, the study will conduct a restoration needs assessment (RNA) and overall watershed evaluation (e.g., water level management and floodplain restoration) to develop an overall implementation plan for the system. This RNA will be conducted in two phases, first focusing on evaluating priority watersheds and areas and then extending to the rest of the system. This process will gather and evaluate existing information to identify overall system needs and specific priority areas for restoration. As part of the study process, some new research and modeling will be undertaken to better understand system needs, river processes, and opportunities for successful restoration.

In addition to this system evaluation, if a need is identified, it is anticipated that the study will identify, evaluate, and potentially recommend for implementation a number of specific restoration actions. However, due to the limited timeframe of the study, it will likely be necessary to identify just two to three priority areas for more detailed analysis and development of potential specific restoration alternatives. It is anticipated that these first couple of sites will only represent a small portion of the potential specific restoration opportunities. If this is the case, a longer list of potential projects will be developed and the final report could recommend an ongoing program to

address a specified amount of restoration using selection criteria/formulation framework developed as part of the feasibility study.

The alternatives to be considered in the feasibility report fit into four broad categories, shown below. It is anticipated that the greatest amount of effort will be focused on assessing and identifying ways to address watershed stabilization. Some of the restoration efforts identified will likely be implementable under other Corps restoration authorities or the Upper Mississippi River-Environmental Management Program (EMP). For example, as the main channel and backwater modification restoration needs are identified, appropriate projects may be recommended for funding under the EMP. Likewise, other projects may be appropriate for Section 206 or Section 1135 funding. However, any gaps in the ability to address these restoration needs will lead to inclusion and funding as part of this study.

1. Watershed Stabilization - address tributary alterations and land uses, conservation easements, wetlands, water retention, riparian filter strips, and stream restoration.

2. Main Channel and Backwaters Modification - consider opportunities to restore habitats in these areas including off-channel deep water habitat, backwater lakes, side channels, constructing islands, etc.

3. Water Level Management - evaluate options to reduce rapid fluctuations and naturalize flows.

4. Floodplain Restoration and Protection - evaluate floodplain use, potential restoration of floodplain function, and value/potential for acquisition/use of CREP easements.

More specifically, potential actions and plans could address to varying degrees the following *Integrated Management Plan* recommendations, but are not limited to them:

1. Investigate beneficial use of sediments through three options for use of dredged materials.

2. Implement backwater lake and side channel sediment management measures at selected locations.

3. Assess the feasibility of implementing a temporary drawdown in conjunction with scheduled maintenance of the navigation system to dry out and compact deposited sediments.

4. Implement regional strategies to protect, restore, and expand critical habitats through public/private partnerships, voluntary incentive programs, management agreements, and technical assistance.

5. Complete the ongoing work to determine the extent of shoreline erosion on the Illinois River due to boat-generated waves and pursue recommended controls or remedies accordingly.

6. Evaluate the need for mandatory safety training and licensing for recreational boat operators on major waterways in the Illinois basin, particularly in relation to commercial barge traffic.

7. Identify the causes of unnatural and natural water level fluctuations; disseminate results and implement solutions as appropriate.

8. Establish water level management programs throughout the watershed for sediment management, waterbanking, and flood crest reduction.

9. Provide incentives for selective dechannelization of tributaries on a voluntary basis.

10. Stabilize unstable streams in rural and urban areas, particularly streams where the rate or magnitude of erosion yields abrupt or progressive changes in location, gradient, or pattern because of natural or human-induced changes.

11. Implement all actions called for in the Great Lakes Memorandum of Understanding.

12. Improve monitoring of water and sediment of Illinois streams.

13. Build wetlands and other water retention capacity in urban and rural areas in the Illinois Basin, in collaboration with appropriate public landowners and volunteering private landowners.

14-33. Corps could provide technical assistance as appropriate and as requested.

Other potential actions include:

- Dredge selected backwaters, side channels, and the mouths of tributary streams that enter lakes to remove sediment buildup and create backwater habitats.
- Construct dikes, levees, and pumping stations to keep silt-laden waters out of prime habitat areas and to control water levels in moist-soil environments.
- Build islands to create habitat for aquatic plants and wildlife.
- Open or close side channels to maintain the flow of water to these channels and backwaters.
- Develop aeration and water control systems to improve habitat quality.
- Investigate the cause and effect of the hydrologic cycle and make projections into the future. In addition, develop strategies to mitigate potential detrimental effects.
- Evaluate the setback, removal, changed management or acquisition of selected leveed areas to increase floodplain habitats and reduce water level fluctuations.
- Develop models and actions to ameliorate tributary sedimentation and improve habitats in these areas, including riffle pool restoration, dechannelizing/remeandering of streams, grade control, sediment traps, buffer zones, etc.

III. Scope of Studies

The anticipated product will be a feasibility report for the Illinois River, Illinois, accompanied by an environmental document to comply with the National Environmental Policy Act (NEPA). The feasibility report will provide all the necessary documentation to permit project authorization by the U.S. Congress for construction of a Federal project(s), if justified. The feasibility report will build upon the information contained in the reconnaissance analysis and will include:

- A two-phase restoration needs assessment (RNA) evaluating system-wide restoration needs in the Illinois River Watershed and along tributaries, especially as they relate to potentially alleviating stream instability issues (excessive sediment delivery, excessive bank erosion, downcutting, water retention capacity, and hydrologic variability) impacting the main stem of the Illinois River;

- Detailed examination of the loss of backwater and side channel habitat, sedimentation problems, and potential restoration alternatives including the ones identified in the *Integrated Management Plan for the Illinois River Watershed*;

- Detailed evaluation of potential refinements in water level management related to operations of Corps of Engineers Dams, Greater Chicago Metropolitan Water Reclamation District (MWRD), Lake Michigan Diversions and tributary streams, focusing on more closely replicating natural hydrologic regime;

- Evaluation of floodplain management options, including increased management, removal, setback, or acquisition of some leveed areas;

- Development of a list of potential restoration projects in the watershed, a prioritization framework/mechanism, and detailed design for two to three specific sites;

- Encouragement of maximum participation and partnering with other Federal, State, and local agencies and non-profit organizations.

- Review and modification of alternatives, considering the nature of the problems, site characteristics, and area resources, as necessary;

- Assessment of the environmental effects of the possible solutions, and preparation of appropriate NEPA documentation;

- Investigation of possible impacts to cultural resources with results and determination of effects coordinated in accordance with Section 106 (Public Law 89-655, as amended) responsibilities;

- Coordination with the U.S. Fish and Wildlife Service (USFWS) including receipt of a Fish and Wildlife Coordination Act Report;

- Preparation of typical design plates and quantity estimates;

- Estimation of project costs and benefits;

- Preparation of a preliminary hazardous, toxic, and radioactive substance assessment;

- Compliance with other environmental laws and regulations as appropriate;

- Coordination of a public involvement program to ensure that the public's concerns are addressed and that the public is kept apprised of what the Corps and its partners are proposing;

- Analysis of project implementation arrangements, including construction cost-sharing requirements and an ability-to-pay analysis of the non-Federal sponsor's project financing plan;

- Preparation of a Project Management Plan (PMP) which describes the tasks and associated costs required during the Preconstruction Engineering and Design (PED) phase; and

- Recommendation for authorization and construction, if a project(s) is justified and supported by non-Federal sponsor(s). This includes preparation at the earliest point possible of interim authorization reports for projects showing immediate justification and need.

This section of the PSP defines the products and describes the tasks to be accomplished during the course of the feasibility study. A complete listing of the tasks that must be accomplished in order to meet all applicable Federal laws, statutes, and policies is provided first. The majority of this section of the PSP is devoted to specific descriptions of each feasibility study task, including: the technical studies and investigations to be accomplished; the reasons for each task; the techniques, models, and procedures to be used; the organizational elements responsible for each task; and the timing, schedule, and cost of each task. Relationships and dependencies between tasks are addressed in Section VI, Feasibility Study Schedule.

The organization and description of feasibility study tasks follows the U.S. Army Corps of Engineers Civil Works Breakdown Structure (CWBS) definitions. The CWBS follows a hierarchical organization, providing a breakdown of products, sub-products, major tasks/work elements, and tasks/activities required to produce a feasibility study in increasing levels of detail and specificity.

A. Review of Feasibility Study Products

This PSP covers the development of four products prior to the initiation of Preconstruction Engineering and Design (PED):

1. Feasibility Report and Environmental Document (Product J)

2. Preliminary PCA and Financing Plan (Product K)

3. Draft Project Management Plan (Product L)

4. Other Supporting Plans (Product M)

1. Feasibility Report (J)

This product includes all activities leading to the approval of the final feasibility report and NEPA document by the Headquarters, U.S. Army Corps of Engineers and the Office of the Assistant

Secretary of the Army (Civil Works). It will describe all of the problem identification and formulation activities required and recommend a plan for improvement. It also includes NEPA, Section 106, and other environmental compliance documentation; coordination of the study and results with all interested parties; and initial and final quality assurance review by the Mississippi Valley Division of the Corps of Engineers, policy review by the Headquarters, U.S. Army Corps of Engineers, and, ultimately, transmittal to the Congress. The feasibility study, culminating in the Notice of the Division Engineer, is scheduled for completion in September of 2003.

2. Environmental Document (J)

This product includes all activities leading to the assessment of environmental impacts related to the various initiatives being investigated. These activities include scoping and preparation of the environmental document, public coordination and review, and notification of findings. The alternative analysis, included as part of the NEPA document, will investigate the positive and negative aspects of each alternative proposed at each site identified in the feasibility study.

3. Preliminary PCA and Financing Plan (K)

Administration policy permits the expenditure of Federal funds for all costs associated with the reconnaissance phase. Section 105(a)(1) of the Water Resources Development Act of 1986, however, requires that the cost of a subsequent feasibility phase be shared equally (50/50 split) between the Federal Government and a non-Federal sponsor(s).

To proceed beyond the reconnaissance phase, the Federal Government and the non-Federal sponsor must agree that the proposed project is in the Federal and non-Federal interest and then negotiate a Feasibility Cost Sharing Agreement (FCSA) that commits both parties to equally sharing 50 percent of the feasibility phase. It sets forth the management structure, obligations of the signatories, methods of payment, resolution of disputes, methods for termination or suspension of the feasibility study, and other general contractual matters. The PSP is an addendum to the FCSA.

Up to one-half of the non-Federal contribution, or one-quarter of the total cost of the feasibility phase, may be in the form of in-kind services. In-kind services are those tasks performed and paid for by the non-Federal sponsor which are in direct support of the feasibility study effort. While all in-kind services should be in support of the particular study, it is permissible for non-Federal sponsor to reorient existing programs and on-going work to complement the Corps feasibility study.

Federal funds to initiate the feasibility phase may be allocated only after a negotiated FCSA has been prepared and Corps higher authority has certified all documents. The feasibility phase can then begin after execution of the FCSA and receipt of both Federal and non-Federal funds.

As the details of the recommended plans are finalized, coordination will continue with the local sponsor to review the model language for Project Cooperation Agreements (PCAs) for the various projects. Letters of intent that acknowledge the requirements of local cooperation and express good faith intent to provide those items for the recommended project will be developed. Coordination of the PCA model and the preliminary financing plan will be completed concurrent with the draft feasibility report by the non-Federal sponsor. Additionally, preliminary financing plans will be developed by the sponsor to detail plans for financing costs. The Rock Island District will then complete the assessment of these plans and an ability to pay analysis.

4. Draft Project Management Plan (PMP) (L)

As part of the feasibility cost-sharing agreement, a Project Study Plan (PSP) is prepared and negotiated. The PSP documents the specific Federal and non-Federal efforts that will be required to conduct the feasibility phase. The PSP is appended to the FCSA and lays out the work tasks, costs, and schedules for the entire feasibility phase. It also furnishes a basis for identifying the in-kind services to be provided by the non-Federal sponsor and for negotiating the value of these services. Significant changes to the PSP during the feasibility study will require a modification of the FCSA.

As part of the feasibility effort, a draft Project Management Plan (PMP) will be prepared based on the recommended project(s) and a baseline cost estimate will be developed. The draft PMP will address the schedule of Preconstruction Engineering and Design (PED) activities. These activities include design memorandums and preparation of plans and specifications for the initial construction contracts. The draft PMP will address the development of additional products and more detailed plans for successful management and completion of the project. These documents will form the basis for the PMP to be finalized for project construction. The draft PMP will be submitted with the draft feasibility report.

5. Other Supporting Plans (M)

Other supporting plans will be developed as needed as the study progresses to address specific items such as local cooperation, real estate acquisition, quality control, value engineering, environmental and cultural matters, safety and security, and project operation and maintenance. Reporting requirements in ER 5-1-11, *Program and Project Management*, will be adhered to.

B. Description of Tasks Required to Produce Products, Analyze Alternatives, and Determine Feasibility

The purpose of this section of the PSP is to describe the products, sub-products, major tasks/work elements, and tasks/activities required to produce a feasibility study. Tasks are organized according to the U.S. Army Corps of Engineers Civil Works Breakdown Structure (CWBS) definitions.

Product J Feasibility Report

Sub-Product JA Engineering Appendix

An Engineering Appendix will be prepared that supports the alternative analysis and the recommendations shown in the Feasibility Report. For site-specific recommendations, the Engineering Appendix will be prepared at a level of detail necessary to develop a defensible baseline cost estimate that addresses all pertinent cost factors with adequate contingency factors. The Engineering Appendix will document the results of all of the engineering investigations conducted during the feasibility phase, including: surveying and mapping, hydrology and hydraulics studies, geotechnical investigations, site investigations, design analysis, and cost estimating. The Engineering Appendix will be prepared by the Rock Island District's Engineering Division (or its contractor) and will be scheduled for completion in time to be incorporated into the draft Feasibility Report. The cost of preparation of the Engineering Appendix is included under the various tasks under Sub-Product JA. The schedule and cost of required engineering technical investigations are detailed below.

Major Task JAA Surveying and Mapping

Surveying of specific island creation/environmental restoration sites will be required to design restoration plans. All surveying activities will be performed in accordance with EM 1110-2-1000, EM 1110-1-1003, and EM 1110-1-1005. The USGS, USFWS, NRCS, State, and local government planning agencies and universities will be contacted to locate and obtain any available existing surveying and mapping data. Existing and historical aerial photography also will be obtained from available sources.

The cost of this item is shown under the GIS tasks under JJBB, JJBC, and JJBD.

Task JAAA Main Channel and Backwater Modification

Evaluate historic and current geomorphology. The first step for this task is to solicit agency expert opinions to identify main channel and backwater areas that are in the greatest need of rehabilitation. For the areas identified, collect all available historic plan form and bathymetric information and input into the GIS database. Limited site surveying will be required at each of these sites to accurately assess existing conditions. An effort will be made to determine the relative value of various sites.

Task will require 60 person days and cost $30,000 per site. Assuming two sites, total for this task is 120 person days at a cost of $60,000.

Task JAAB Survey of Specific Sites - Upland Sites

As specific upland sites are identified, necessary site surveys will be conducted.

Task will require 30 person days and cost $15,000 per site. Assuming two sites, the total for this task is 60 person days at a cost of $30,000.

Major Task JAB Hydrology and Hydraulics Studies/Report

A report will be prepared that details the results of hydraulic and hydrologic studies conducted during the feasibility study to characterize the study area and design and evaluate alternative plans. The task will require 100 person days and cost $50,000.

Task JABA Watershed Stability Analysis

Focus of this task is to conduct a system assessment of watersheds within the Illinois River Watershed to identify priority areas and potential approaches for restoration.

Sub-Task JABAA Tributary Sediment Analysis

Using sediment gage information, empirical soil loss equations, NRCS information, etc., determine critical watersheds for sediment input to the Illinois River System. These basins could consist of areas with highly erodible soils, excessive slopes, excessive bank erosion, etc. Task will require 200 person days and cost $100,000.

Sub-Task JABAB Tributary Hydrology

For several typical highly erodible basins, develop proposed land treatment practices and evaluate the impact of these practices on sediment delivery, flood peaks, and improved base flow using rainfall runoff modeling, soil loss equations and ground water analysis tools. The task will require 100 person days and cost $50,000.

Sub-Task JABAC Hydrologic Modeling of the Watershed

The stability analysis of the watershed should be done based on existing data supported by a calibrated and verified hydrologic model of the watershed. The model should be able to predict the consequences of actions to be taken within the watershed. The model will consist of two levels: a course grid model for the entire watershed and a fine grid model for some specific and selected watershed(s). The work will require 350 person days and cost $175,000.

Sub-Task JABAD Tributary Basin - Geomorphology Analysis

Conduct geomorphic analysis of tributary basin. May decide to contract for this effort. However, combine in-house GIS and Hydrology to catalog stream parameters and develop design parameters for unstable streams. Expect detailed work on two to three streams. Task will require 50 person days and cost $25,000.

Task JABB Main Channel and Backwater Modification - Modeling

For selected side channel and backwater areas, develop and calibrate a 2-D hydrodynamic and apply sediment transport model as appropriate. Evaluate the selected sites to determine sources of sediment and potential project features for rehabilitation projects. For the rehabilitation of existing or for the development of new side channel areas, micro modeling may be utilized to evaluate the alternative design features.

Task will require 180 person days and cost $90,000 per site. Assuming two sites, this task will require a total of 360 person days at a cost of $180,000.

Task JABC Water Level Management Analysis

This task focuses on the potential for improvements in water level management. This effort includes a focus on two primary areas: improving water level management to reduce rapid fluctuations and assessing the potential for further management, such as drawdown of pools, to produce environmental benefits.

Sub-Task JABCA System Water Level Management Analysis

This analysis will focus on review of existing water level management procedures and analysis of revised water level management procedures that could result in improved environmental conditions on the Illinois River.

Sub-Sub-Task JABCAA Historic Fluctuations

Past records will be collected, summarized, and evaluated based on conditions at the recorded events. High, normal, and low flow event periods will be described for the main stem Illinois

Waterway only. Some effort will be devoted to establishing natural flow hydrographs possibly based on a comparison to a similar less regulated stream. This task will require 70 person days and cost $35,000.

Sub-Sub-Task JABCAB Changes to Waterway

The operational impacts of changes in management (such as Lake Michigan Diversions and MWRD operations) will be related to the fluctuations previously summarized in sub-task JABCAA. This task will require 40 person days and cost $20,000.

Sub-Sub-Task JABCAC Water Level Model Development/Testing

An appropriate unsteady flow model will be developed to model the operation of the waterway including navigational, diversion, and flood control constraints. This model will be calibrated to reproduce selected historic events. Based on the flow model, a study will be undertaken to determine if changes to the operation of the Illinois Waterway could result in improved environmental conditions. This task will require 200 person days and cost $100,000.

Sub-Sub-Task JABCAD Water Level Modeling Application

Based on the flow model, a study will be undertaken to determine if changes to the operation of the Illinois Waterway could result in improved system environmental conditions. This task will require 40 person days and cost $20,000.

Sub-Sub-Task JABCAE Water Level - MWRD & Lake Michigan Diversions

Coordinate with the Chicago Metropolitan Reclamation District (MWRD) in developing improved operating plans to reduce water level fluctuations downstream of the Chicago area. Also assess impacts of Lake Michigan diversions. This task will require 120 person days and cost $60,000.

Sub-Task JABCB Water Level Modeling - Drawdown

A pool draw down will be evaluated for selected pools. Selection will be based on guidance from others and minimal hydraulic data. Evaluations will be based on SMS modeling and include impacts of any proposed improved operation.

Task will require 100 person days and cost $50,000 per pool. Assuming two pools, the task will require 200 person days at a cost of $100,000.

Task JABD Floodplain Restoration and Protection - Modeling

Use the UNET Model developed for the water level management task to investigate and optimize use of existing leveed areas to reduce major flood peak discharges and enhance floodplain environment. This will require significant coordination with other agencies and private landowners. Sediment aspects are assumed negligible and beyond the scope of this task.

This task will be conducted in phases. The first phase involving analysis of the baseline assessment of existing levee impacts and development of rough alternatives will be conducted by the Illinois State Water Survey. Subsequent phases to optimize and select the preferred alternatives will be conducted by the Corps of Engineers.

This task will require 360 person days and cost $180,000 (300 person days Federal = $150,000 and 60 person days non-Federal = $30,000).

Major Task JAC Geotechnical Studies Report

An analysis of the project area will be performed at a general level of detail, based on geologic and soil information obtained through secondary data sources, limited field explorations, and selected laboratory testing. Detailed analysis will be performed for approximately two to three selected sites. Geophysical investigations will be performed in accordance with EM 1110-1-1802 and ER 1110-2-1150. Engineering studies will include: sediment composition, assistance in site selection, stability analysis, settlement, bearing capacity, wave analyses, and foundation design, material utilization, and development of construction sequences. Analysis of the selected alternatives will be accomplished to a level of detail necessary to meet the requirements of the baseline cost estimate.

Task will require 30 person days and $15,000 per site. Assuming two to three sites, total for the task will be 90 person days at a cost of $45,000.

Major Task JAD Site Development Analysis/Report

A site development and analysis report is generally required only on major projects where the site cannot be selected based on an initial field inspection or evaluation of existing data, but will require additional field investigations (and possibly more detailed hydraulic analysis). The need for site development and analysis may be required. The Rock Island District Engineering Division's Design Branch will perform this task. Assuming two sites, this task will require 40 person days at a cost of $20,000.

Major Task JAE Engineering and Design Analysis Report with Preliminary Drawings

All design and drawings will be completed to a level of detail that will ensure the integrity of the structure and/or system and meet the requirements of the baseline cost estimate. Engineering and design activities will be performed in accordance with ER 1110-1-12 and ER 1110-2-1150.

Task JAEA Preliminary Designs

Preliminary designs will be prepared on two to three project alternatives. Preliminary concept level designs will be prepared at a level of detail sufficient to develop venture level cost estimates and aid in the screening of alternatives. The Rock Island District's Engineering Division (or its contractor) will perform this task. Detailed MCACES level designs if included in the feasibility study will significantly increase the project costs. This task will require 150 person days and cost $75,000.

Task JAEB Detailed Designs

Detailed designs and preliminary drawings will be prepared for approximately two to three project alternatives. Designs and drawings will be developed at a feasibility level of detail. The Rock Island District's Engineering Division (or its contractor) will perform this task. The cost of this task could vary greatly depending on the complexity of the each project. This task will require 300 person days and cost $150,000.

Task JAEC Engineering Support to Plan Formulation

Engineering evaluations are critical to the plan formulation efforts and successful public involvement efforts. As part of this task, engineering staff will participate in plan formulation efforts, meetings with the sponsor, and public involvement activities to assist in identifying and selecting alternative projects. This task will require 100 person days and cost $50,000.

The total of all activities to complete Sub-Product JA - Engineering Appendix is $1,525,000.

Sub-Product JB Socioeconomic Studies/Report

Socioeconomic studies will be performed in compliance with the requirements of ER 1105-2-100. The purposes of socioeconomic studies are to assist in problem identification, characterize the social and demographic characteristics of affected populations, and to describe the social and economic benefits and costs of alternative solutions. Specifically, the socioeconomic studies will describe and quantify (where possible) the impacts of alternative plans on National Economic Development (NED) and social effects.

In addition, socioeconomic studies will include ability to pay analysis, analysis of local sponsor's financing capability, and risk-based analyses, as required by ER 1105-2-100. The schedule and cost of required socioeconomic investigations are detailed below.

Major Task JBA Economic Analysis/Report

The purpose of the economic analysis report is to quantify and describe the impacts of alternative plans on the NED account.

Task JBAA Flood Damage Reduction Analysis

An analysis of potential flood damage reduction benefits associated with ecosystem restoration projects, as related to potential floodplain restoration projects (such as agricultural levee district buyout) will be developed for the feasibility study. This information will be provided to the project team for use in evaluating alternatives and also will be used in the NEPA document in the section on socioeconomic impacts. This effort will be based on analyzing benefits of restoration alternatives, which might reduce hydraulic profiles or flood peaks. Such evaluation would be directly related to hydraulic analysis of alternatives. The Rock Island District's Planning, Programs, and Project Management Division (or its contractor) will accomplish this task. This task will require 60 person days and cost $30,000.

Task JBAB Socioeconomic Analysis Report

The results of socioeconomic studies will be presented in a Socioeconomic Appendix to the Feasibility Report. Summary results also will be incorporated into the main body of the Feasibility Report and NEPA document. The Rock Island District's Planning, Programs, and Project Management Division (or its contractor) will prepare the Socioeconomic Appendix. This task will require 20 person days and cost $10,000.

Major Task JBB Social Studies/Report

The existing sociological, economic, and demographic conditions for the project area will be documented in the Feasibility Report. Impacts to be considered under the social impact assessment include: community and regional growth; community cohesion, displacement of people; property values and tax revenues; public facilities and services; life, health and safety; business and industrial growth; employment and labor force; farm displacement; noise levels; and aesthetics. These impacts are incorporated into the environmental document. The Rock Island District's Planning, Programs, and Project Management Division (or its contractor) will perform this task. This task will require 20 person days and cost $10,000.

Major Task JBD Ability to Pay Report

An ability to pay analysis will be prepared in compliance with the requirements of ER 1105-2-100 and the provisions of WRDA 1986. The analysis will determine the local sponsor's eligibility to reduce its cost-sharing responsibilities based on local economic conditions.

This task will be performed by the Rock Island District's Planning, Programs, and Project Management Division and will require 1 person day and cost $500.

Major Task JBE Financial Analysis Report

A financial analysis report will be prepared that consists of the non-Federal sponsor's statement of financial capability, its preliminary financing plan, and the District Commander's assessment of the non-Federal sponsor's financial capability. The financing plan will include: a current schedule of estimated Federal and non-Federal costs, by fiscal year; a schedule of the sources and uses of non-Federal funds during and after construction, by fiscal year; and the method of finance for all non-Federal outlays, including Operation, Maintenance, Repair, Rehabilitation and Replacement (OMRR&R) associated with the project. The non-Federal sponsor's statement of financial capability will include evidence of its authority and ability to obtain and commit the identified sources and uses of funds.

Task JBEA Statement of Financial Capability

The Statement of Financial Capability is a clear and convincing description, submitted by the non-Federal sponsor, of its capability to meet its financial obligations for the project in accordance with the project funding schedule. This will include providing evidence of the non-Federal sponsor's authority to utilize the identified sources of funds; and the Statement of Financial Capability will provide information on the non-Federal sponsor's capability to obtain remaining funds, if any. This task will require 4 person days and cost $2,000.

Task JBEB Financing Plan

The Corps of Engineers will prepare a Financing Plan that clearly and convincingly describes how the non-Federal sponsor intends to meet its financial obligations for the project in accordance with the project funding and OMRR&R schedules. The Financing Plan will include a current schedule of estimated Federal and non-Federal expenditures by Federal fiscal year (1 Oct-30 Sep), will exactly reflect cost-sharing policy, and will agree with estimated cost figures in the Feasibility Report. In addition, a schedule of the sources and uses of non-Federal funds during and after construction by Federal fiscal year will be included. The schedule will include project outlays and income, as well as outlays and income related to project construction and financing. Also, the

schedule of the sources and uses of funds will be consistent with the schedule of estimated Federal and non-Federal expenditures. Finally, the Financing Plan will explain the method of finance for all non-Federal outlays, including OMRR&R, associated with the project. The Rock Island District's Planning, Programs, and Project Management Division will perform this task. The task will require 10 person days and cost $5,000.

Task JBEC Assessment of Financial Capability

The District Commander's assessment of the non-Federal sponsor's financial capability is to determine if it is reasonable to expect that ample funds will be available to satisfy the non-Federal sponsor's financial obligations for the project. Consideration should be given to prior performance of the non-Federal sponsor on similar projects, certainty of revenue sources and method of payment, and the overall financial position of the non-Federal sponsor. The assessment will demonstrate: (1) that the sponsor has adequate funds to meet its financial obligations as delineated by the project funding schedule provided by the Corps; (2) that the reliability of the sources of funds has been demonstrated; (3) that the sponsor has full and legal access to those funds; and (4) that all parties providing funding essential to meeting the sponsor's financial obligation are legally committed to providing those funds. The Rock Island District's Planning, Programs, and Project Management Division and the non-Federal sponsor will perform this task. This task will require 10 person days and cost $5,000.

The total of all activities to complete Sub-Product JB - Socioeconomic Studies/Report is $62,500.

Sub-Product JC Real Estate Analysis/Documents

All written real estate memoranda, opinions, reports and other documents will be prepared as required by ER 405-1-12, Chapter 12.

Major Task JCA Real Estate Plan

A Real Estate Plan (REP) will be prepared that contains a description of the area; the acreage and proposed estates, including non-standard estates, and reasons therefor; a discussion of any land owned by the Federal Government, the local sponsor, or any public entity; an estimate of the Public Law 91-646 relocations; the Baseline Cost Estimate for Real Estate; a discussion of the local sponsor's ability to acquire Lands, Easements, Rights-of-Way, Relocations and Disposal (LERRD) area; the attitude of the landowner; a detailed schedule of land acquisition; at a minimum a preliminary assessment of the facilities/utilities to be relocated; and any other relevant real estate information appropriate for the project. The REP will be provided to Planning, Programs, and Project Management Division and incorporated into the Project Management Plan (PMP). Real Estate Division representatives will attend meetings and conferences with the sponsor when necessary. Real Estate Division also will be involved in preparing, modifying, and revising the Project Cooperation Agreement (PCA) in cooperation with the local sponsor, project manager, and all other affiliated or concerned agencies. This task will be performed by the Rock Island District's Real Estate Division and will require 25 person days and cost $15,000.

Major Task JCB Gross Appraisal/Report

The Rock Island District's Real Estate Division will evaluate the sites selected for restoration in preparation for conducting the Gross Appraisal. A detailed, supported appraisal of the collective real estate requirements and impact of the project, or selective portion thereof, including review and approval, will be performed as required by ER 405-1-12 (Chapters 4 and 12) and policy

guidance. Integral to this work is the preparation of a Baseline Cost Estimate for Real Estate in M-CACES format and a Real Estate Plan (REP). These items are required for inclusion in the final report.

Preparation of the Gross Appraisal will involve a detailed accounting of property ownership, property evaluation for possible easement rights, or acquisition of impacted project lands. This task will be performed by the Rock Island District's Real Estate Division and will require 45 person days and cost $25,000 (includes travel expenses).

Major Task JCC Preliminary Real Estate Acquisition Maps

The Real Estate Division will prepare an initial set of maps and drawings that delineate the real estate acquisition lines based on technical design drawings developed by the Engineering Division during the feasibility phase. Maps and drawings will reflect the minimum real estate required for project purposes. This task will require 60 person days and cost $30,000.

Major Task JCD Physical Takings Analysis

A written legal opinion will be prepared as to whether flooding is estimated to be induced by the construction, operation, or maintenance of the proposed project. If induced flooding is expected, a determination is made whether it will rise to the level of a taking of an interest in real property for which compensation must be paid to the owner of the real property. The opinion will describe the analysis of relevant information regarding the depth, frequency, duration, velocity, and extent of any induced flooding, as well as relevant State and Federal law, and will present a conclusion on the physical occupation taking issue. This task will be performed by the Rock Island District's Real Estate Division and will require 3 person days and cost $3,000.

Major Task JCE Preliminary Attorney's Opinion of Compensability

A preliminary legal opinion will be prepared on whether provision of a substitute facility is required under the Fifth Amendment as compensation for a facility/utility being acquired for the project. The opinion will find whether the owner has a compensable interest, whether the owner has the legal duty to continue to maintain and operate the facility/utility, and whether Federal law requires the provision of a substitute facility/utility rather than a mere payment of the market value for the property to be acquired. This task will be performed by the Rock Island District's Real Estate Division and will require 5 person days and cost $4,000.

Major Task JCF Rights of Entry

The Rock Island District's Real Estate Division will also obtain rights of entry as is necessary for various studies. Rights of entry will be obtained for purposes of environmental investigations, cultural assessments, core sampling, surveys, exploration, etc. Documentation will be prepared that provides evidence that permission was obtained from a landowner to temporarily use his/her land for a specific time and purpose. This task will be performed by the Rock Island District's Real Estate Division and will require 8 person days and cost $5,000.

Major Task JCG All Other Real Estate Analyses/Documents

No additional analyses or documents are anticipated.

The total of all activities to complete Sub-Product JC - Real Estate Analysis/ Documents is $82,000.

Sub-Product JD Environmental Studies/Reports

The purposes of environmental tasks during feasibility level environmental restoration studies are twofold: to satisfy the compliance requirements of NEPA, Section 404, and other environmental resources laws and regulations; and to provide environmental technical support during plan formulation. The technical support and plan formulation will be accomplished during the feasibility study by completing four biological tasks. The tasks are: (1) overall study area evaluation and characterization by Restoration Needs Assessment (RNA); (2) assessment of selected sites; (3) development of alternative conceptual designs; and (4) assessment of alternative conceptual designs. The information presented in each of these major tasks describes what data will be collected and how it will be evaluated with respect to the study goals and objectives. The data being collected and evaluated in each task will be for those potential projects identified during the plan formulation and evaluation process. A description of the details on how potential projects will be identified is contained within account JJ Plan Formulation.

Major Task JDA Documentation of Scoping Meetings

The purpose of the feasibility study is to ensure the timely and economical completion of a quality feasibility report that is expected to recommend an implementable solution to the identified water resources problems. Documentation of Scoping Meetings will record the process involved to come to a recommendation.

The task will require 50 person days and cost $25,000.

Major Task JDC Programmatic Environmental Impact Statement

The purpose of the Programmatic Environmental Impact Statement during feasibility level environmental restoration studies are twofold: to satisfy the compliance requirements of NEPA, Section 404, and other environmental resources laws and regulations; and to provide environmental technical support during plan formulation on a site-specific basis.

NEPA compliance requirements are outlined within the provisions of the National Environmental Policy Act (NEPA), the Council on Environmental Quality (CEQ) regulations 40 CFR 1500-1508, and the U.S. Army Corps of Engineers Regulation 200-2-2, *Procedures for Implementing NEPA.* Requirements include documentation and assessment of the effects of a proposed Federal action on significant resources. The focus of NEPA compliance will be to provide information to other agencies, the public, and decision makers on the study and to ensure that the report adequately addresses environmental requirements. Other laws and regulations which require environmental compliance actions include Sections 401 and 404 of the Clean Water Act, Section 7 of the Endangered Species Act, Clean Air Act, U.S. Fish and Wildlife Coordination Act, Section 106 of the National Historic Preservation Act, Prime and Unique Farmlands, and National Pollutant Discharge Elimination System Act.

The purpose of the Illinois River Ecosystem Restoration Study is to restore ecological structures and functions. An Environmental Impact Statement (EIS) document will be prepared, as required by the National Environmental Policy Act of 1969 (NEPA), that evaluates the impacts of project alternatives on the human environment. It will include an overall programmatic analysis of the total range of potential restoration measures, as well as a more detailed analysis of any measures recommended for immediate implementation.

This task will be performed by the Rock Island District's Planning, Programs, and Project Management Division (or its contractor).

This task will require 500 person days and cost $250,000.

Major Task JDD Coordination Documents with Other Agencies

Documents presenting results of evaluations and assessments of survey, inventory, public notice, correspondence, public meetings, and responses from opinion requests will be coordinated among the required agencies of concern. A formal record will be made of discussions with the public and resource agencies that define the environmental concerns related to the evaluation of project alternatives and the selection of the recommended plan. This task will be performed by the Rock Island District's Planning, Programs, and Project Management Division.

This task will require 100 person days and cost $50,000.

Major Task JDE Environmental Resource Inventory Reports

This section includes tasks to assess and inventory the entire watershed as well as specific sites to identify the quality of the resources and potential locations for restoration efforts.

Task JDEA Restoration Needs Assessment (RNA)

The Restoration Needs Assessment (RNA) will provide a practical and scientific basis for assessing the large study area and identifying potential restoration project types and locations for the Illinois River and its tributaries. The RNA will define those critical assumptions controlling our ability to determine habitat needs and focus the study, planning, and construction efforts on the areas of critical need. Due to the large size of the study area and scope of the work, this effort is planned to be conducted in two phases. Priority subwatersheds will be identified and addressed in phase one and the remainder of the watershed evaluated in phase two.

1. A Habitat Needs Assessment for the Illinois River is currently being completed as part of the Upper Mississippi River - Environmental Management Program (EMP). Information from this effort will be used for the main stem Illinois River and the effort will serve as the general model for the watershed/tributary RNA.

2. In assessing the rest of the watershed, no new field data will be acquired with RNA funding.

3. All relevant data and prior investigations will be collected and reviewed in order to assess current understanding of the biological, geomorphic, and hydrologic traits of the watershed. Potential sources for information include academia (University of Illinois, Illinois State University, Western Illinois University, etc.), government agencies (USGS, U.S. EPA, NRCS, USFWS, Illinois EPA, Illinois Department of Natural Resources, Illinois State Natural History

Survey, and Illinois State Water Survey), and private/non-profit groups (Nature Conservancy, Ducks Unlimited, etc.).

4. The analysis will utilize experts on the region's resources and focus on literature review, the synthesis of existing data and information.

5. Information and data needs for future refinements of the RNA will be identified.

6. This project will provide a context for understanding how river habitat features came to be as they are today, how they are likely to change, and how restoration and management can affect this change.

Biological, geomorphic, land use/land cover, and hydrologic information will be gathered, developed, analyzed, and used. While the actual scope will be finalized during the feasibility phase, the analysis will consider the historic context, present conditions, likely future conditions without a project, and the desired future condition of the watershed in terms of habitat types and quantities. The difference between the likely future conditions and desired future conditions will define the habitat/restoration needs. In addition to identifying the needs, the analysis will identify types of restoration projects and a number (approximately 10-100) of potential specific projects throughout the watershed that would meet the desired criteria.

In order practically to address the large area, the RNA will be conducted in two phases. In addition, it is anticipated that sub-teams will be formed to address the various major tributary watersheds. These sub-teams would report back to the overall team with data in the same format for consolidation and comparison across sub-watersheds. This effort will be conducted according to guidelines in applicable regulations including ER 1105-2-100, *Guidance for Conducting Civil Works Planning Studies*; ER 1165-2-501, *Water Resource Policies and Authorities, Civil Works Ecosystem Restoration Policy*; Policy Guidance Letter No. 24, *Restoration of Fish and Wildlife Habitat Resources*; Policy Guidance Letter No. 59, *Recreation Development at Ecosystem Restoration Projects*; and Policy Guidance Letter No. 61, *Application of Watershed Perspective to Corps of Engineers Civil Works Programs and Activities*. The inventory report will specify the needs and opportunities for ecosystem restoration opportunities within the project area. These opportunities will be further analyzed as part of plan formulation task JJCD.

This task will require 1,400 person days at a cost of $700,000 (1,330 person days Federal = $665,000 and 70 person days non-Federal = $35,000).

Task JDEB Biological/Field Sampling Plan

A field sampling plan will be developed from the RNA to gather the data necessary for analysis in the Integrated Biological Economic Program (IBEPS) or similar habitat assessment model. Planning and logistics for collection of surface water samples, monitoring surface water physical parameters, inventory of fish and macroinvertebrate communities, implementation of bioaccumulation studies, and collection of relevant stream and floodplain data will be collected to be used in the habitat assessment and hydrogeomorphic assessment.

The task will require 40 person days at a cost of $20,000.

Task JDEC Waterfowl, Fish, and Macroinvertebrate Sampling

Waterfowl, fish, and macroinvertebrate communities will be inventoried and biological data will be collected during the feasibility phase in order to complete all inventory needs identified by the RNA.

The task will require 50 person days at a cost of $25,000 per survey. Assuming two sites, the total effort will cost $50,000.

Task JDED Identify Significance of Study Area

The technical significance of natural resources within the study area will be evaluated based on special river/stream or land designations within the watershed by Federal or State agencies, and may include rare, unusual, or scenic habitat types, land forms, or waterways. Expert Hydrogeomorphic Modeling techniques (EXHGM) or a similar approach will be employed to perform this evaluation.

The task will require 50 person days and cost $25,000 per hydrologic unit. Assuming two units, the total effort will cost $50,000.

Major Task JDF Mitigation Analysis Report

It is not anticipated that fish and wildlife mitigation will be required for the Illinois River Ecosystem Restoration Project.

Major Task JDG Endangered Species Analysis

A programmatic level analysis with greater detail regarding any initial restoration sites is required. A Section 7 consultation of the Endangered Species Act will be accomplished during the evaluation of the baseline site conditions, and a letter explaining the results of the consultation will be supplied by the USFWS and integrated into the draft feasibility report.

The task will require 30 person days at a cost of $15,000.

Major Task JDH Section 404(b)(1) Analysis Report

A report will be prepared as required by the Clean Water Act which presents an analysis of any water quality impacts associated with the placement of fill in waters of the United States. This task will be performed for each site recommended for immediate implementation.

The task will require 20 person days at a cost of $10,000 per site. Assuming two sites, the total effort will cost $20,000.

Major Task JDI 401 State Water Quality Certification

Certification will be obtained from the State of Illinois that any proposed actions will not result in a violation of State water quality criteria. This task will be performed by the Rock Island District's Planning, Programs, and Project Management Division and Engineering Division.

The task will require 10 person days at a cost of $5,000 per action. Assuming two sites, the total effort will cost $10,000.

Major Task JDJ Record of Decision (ROD)

A Record of Decision will be prepared for the programmatic EIS.

The task will require 20 person days and cost $10,000.

Major Task JDL Statement of Findings (SOF)

A comprehensive summary of all environmental coordination and record of environmental compliance will be prepared in conjunction with preparation of each Public Notice associated with site-specific programmatic EIS coordination.

The task will require 20 person days and cost $10,000.

Major Task JDN Other Environmental Documentation

Several other environmental studies and documents will be prepared for the project, as detailed below.

Task JDNA Water Quality and Sediment Sampling Report

The feasibility phase of the study will include an inventory and analysis of current water quality and physical habitat conditions in selected stream reaches of each sub-watershed, as well as at each potential project site. Detailed information regarding fluctuations in discharge and chemical constituents is necessary to properly design aquatic habitat restoration projects.

Sub-Task JDNAA Review of Existing Water Quality Data

Review of Existing Water Quality Data and Baseline Surface Water Data Collection will be required to establish baseline information and determine data gaps. Data gaps will be identified and additional sampling proposed. Based upon these findings, water quality monitoring will be initiated in order to gather data required to fulfill Section 404(b)(1) requirements and to perform modeling studies. This task will be performed by the Rock Island District's Engineering Division (or its contractor) and a Certified Laboratory.

The task will require 50 person days at a cost of $25,000 per site. Assuming two sites, the total effort will cost $50,000.

Sub-Task JDNAB Sediment Sampling Contaminant Analysis

Sediment samples will be collected one time from the immediate vicinity of the proposed project sites. Samples will be analyzed by a licensed laboratory for parameters identified by the Illinois EPA, and a mixing zone model will be run to predict impacts of construction activities to water quality. This task will be performed by the Rock Island District's Engineering Division (or its contractor) and the non-Federal sponsor and a Certified Laboratory.

The task will require 50 person days at a cost of $25,000 per site. Assuming two sites, the total effort will cost $50,000.

Task JDNB Quantification of Ecosystem Restoration Outputs

The purpose of this task is to quantify the ecological outputs of ecosystem restoration plans and plan scales in order to assist in the evaluation and prioritization of potential restoration features. Quantification of Ecosystem Restoration Outputs anticipate utilizing the Integrated Biological Economic Planning System or similar approach.

The task will require 50 person days at a cost of $25,000 per site. Assuming two sites, the total effort will cost $50,000.

Sub-Task JDNBA Habitat Based Assessment of Project Area

Habitat Based Assessment of Project Area. Anticipate using Expert Habitat Evaluation Procedures (EXHEP) or similar approach.

The task will require 100 person days and cost $50,000 per site. Assuming two sites, the total effort will cost $100,000.

Sub-Task JDNBB Establish Baseline Level of Ecological Function Under Existing and Improved Conditions

Establish Baseline Level of Ecological Function Under Existing and Improved Conditions Anticipate using the Expert Hydrogeomorphic Modeling (EXHGM) or similar approach.

The task will require 70 person days and cost $35,000 per unit. Assuming two sites, the total effort will cost $70,000.

The total of all activities to complete Sub-Product JD - Environmental Studies/Reports is $1,530,000.

Sub-Product JE Fish and Wildlife Coordination Act Report

The Corps will actively coordinate with the U.S. Fish and Wildlife Service (USFWS) throughout the entire study, as required by the Fish and Wildlife Coordination Act (FWCA). Preparation of a Planning Aid Letter and draft and final Fish and Wildlife Coordination Act Report (FWCAR), as per Section 2(b) of the FWCA, will be requested. The FWCAR will be included as part of the appendix to the main report.

Major Task JEA District Coordination

Project team ecologists will coordinate with the USFWS in providing and reviewing information necessary to assist the USFWS in rendering an opinion under the Coordination Act. A component of this coordination will be the Planning Aid Letter, which will be completed by the USFWS early in the feasibility study phase.

The task will require 40 person days and cost $20,000.

Major Task JEB Preparation of Coordination Act Report

An inter-agency transfer of funds will be provided to the USFWS to compensate them for their involvement in the study and preparation of the Coordination Act Report. The USFWS will

participate in the study scoping, identification of fish and wildlife concerns, identification of available information, determination of the significance of fish and wildlife resources, and quantification of anticipated impacts. The Coordination Act Report will be prepared by the USFWS to accompany the Feasibility Report and NEPA document.

The task will require 40 person days and cost $20,000.

The total of all activities to complete Sub-Product JE - Fish and Wildlife Coordination Act Report is $40,000.

Sub-Product JF HTRW Studies/Report

Hazardous, toxic, and radiological waste (HTRW) investigations will be conducted in accordance with the guidance provided in ER 1165-2-132 and CEMVR-ED Memorandum 1165-1-2. Reports will be prepared using existing information to summarize the HTRW occurrences or potential occurrences within and nearby the project area.

This task will require 30 person days and cost $15,000 per site. Assuming two sites, total requirement will be 60 person days at a cost of $30,000.

Sub-Product JG Cultural Resource Report

Section 106 of the Historic Preservation Act of 1966 requires Federal agencies or project sponsors seeking Federal funding and/or permits to conduct cultural resource surveys and literature searches to search for historic properties eligible for, or listed on, the National Register of Historic Places and determine effects to those properties as a result of the proposed project (undertaking). The impact of alternative plans and undertaking and the effects on historic properties will be developed in consultation with the State Historic Preservation Officer (SHPO). During the development of the alternative plans and proposed undertaking, areas having significant historic properties potentially eligible, or listed on, the National Register of Historic Places shall be provided the fullest consideration receiving protection.

Major Task JGA Site Survey Field Report

The cultural resources investigations will be conducted in a phased approach. Initially, a coordination letter will be sent to the SHPO defining the limits of the project undertaking. As part of the coordination, the Corps' Illinois Geographic Information Systems site file database for historic properties will be queried for historic properties. The Corps will make recommendations as to the potential to affect documented and undocumented historic properties within the proposed project area, along with an opinion about conducting a Phase I architectural or archeological survey and ancillary geomorphological investigations. Based upon the review, comment, and/or response from the SHPO, the Corps may conduct a Phase I survey. Any Phase I reports generated from conducting archeological or architectural investigations will be provided to the SHPO for Section 106 of the NHPA consultation and review. This work will be performed by the Rock Island District's Planning, Programs, and Project Management Division and will require 18 person days and cost $9,000.

Major Task JGB Data Collection and Analysis Report

The Corps may conduct a Phase II survey to determine National Register of Historic Places eligibility and effects of the proposed project on significant historic properties. In consultation

with the SHPO, the Corps will seek the opinion of the interested parties, the SHPO, and the Advisory Council on Historic Places if effects are documented. Phase II reports generated from the archeological or architectural investigations will be provided to the SHPO for Section 106 of the NHPA consultation and review. This work will be performed by the Rock Island District's Planning, Programs, and Project Management Division and will require 40 person days and cost $28,000.

Major Task JGC Mitigation Plan Report

Phase III investigations of excavation or recordation may result if avoidance cannot occur, although alternatives will be screened to exclude impacts on significant historic properties. Therefore, a mitigation plan may be required. This work will be performed by the Rock Island District's Planning, Programs, and Project Management Division and will require 12 person days and cost $8,000. The plan will be written and carried out at an estimated cost of $50,000 by the Planning, Programs, and Project Management Division. Total cost of this task is $58,000.

Major Task JGD Memorandum of Agreement

Identification of historic properties and project impacts will be accomplished in a timely manner. Therefore, a Memorandum of Agreement (MOA) between the District, the SHPO, the Advisory Council on Historic Preservation, and other consulting parties may be required. This work will be performed by the Rock Island District's Planning, Programs, and Project Management Division and will require 9 person days and cost $5,000.

Major Task JGF All Other Cultural Resources Studies/Reports

No additional cultural resource documents will be needed.

The total of all activities to complete Sub-Product JG - Cultural Resource Report is $100,000.

Sub-Product JH Cost Estimates

This activity includes all deliverables required to prepare life cycle cost estimates needed to support the Feasibility Report and to prepare the baseline project cost estimate. Cost estimates will be developed in accordance with the guidance contained in ER 1110-2-1302, *Civil Works Cost Engineering*, using the MCACES cost estimating system. Cost estimates will be presented in the Civil Works Breakdown Structure (CWBS). Cost estimates will include both Federal and non-Federal costs for construction, real estate, engineering and design, construction management, environmental, cultural resources and HTRW investigations and remediation, operation and maintenance, replacement, repairs and rehabilitation of alternatives and the recommended project. Revisions to the estimates prepared for the draft report and comparative cost estimates used for alternative analysis also will be included. In addition, this product will include an estimate of the cost of preparing the cost estimate updated during the Pre-construction Engineering and Design (PED) phase.

Major Task JHA Study Cost Estimate Updates

This activity includes all deliverables related to the preparation of and revisions to the Feasibility Study Cost Estimate. This activity was completed during the reconnaissance phase of the study and no updates are required.

Major Task JHB PED Cost Estimate

The PED cost estimate will be prepared and revised, as necessary, to accompany the Feasibility Report and PMP. The PED cost estimate will include all Federal costs for PED from the date of the Division Commander's Notice to the award of the first Federal construction contract. This task will be performed by the Rock Island District's Engineering Division, with input from each District element responsible for a portion of the PED investigations (costs for preparation of individual elements of the PED estimates are included in the feasibility study cost estimates for each technical discipline).

The task will require 30 person days and cost $15,000. Five working days should be allowed from start to completion of this task, following completion of the project cost estimates.

Major Task JHC Project Cost Estimate

Project cost estimates will be prepared using a phased approach, as described below. Project cost estimates will be prepared in accordance with the requirements of ER 1110-1-1300 and ER 1110-2-1302.

Task JHCA Preliminary Cost Estimates

Preliminary reconnaissance level cost estimates will be prepared for the initial set of alternatives to support the plan formulation and screening of alternatives. Comparative cost estimating techniques will be used to support alternative screening and preliminary incremental analyses. Approximately nine alternatives (three alternatives at each site) will require preliminary cost estimates during this phase. The Rock Island District's Engineering Division (or its contractor) will perform this task.

The task will require 30 person days and cost $15,000. Forty-five working days should be allowed from the start to completion of this task.

Task JHCB Feasibility Level Cost Estimates

Detailed feasibility level cost estimates will be prepared for approximately two to three recommended projects. Detailed cost estimates will be prepared using the MCACES cost estimating program and will be documented with notes to explain the assumed construction methods, crews, productivities, sources of materials, and other specific information. Labor costs will be based on the prevailing Davis-Bacon wage rates for each trade. Equipment costs will be based on EP 1110-1-8, *Construction Equipment Ownership and Operation Expense Schedule*. Contingencies will be developed and applied where areas of uncertainty exist. Detailed costs for all of the non-construction cost items (lands and damages, construction management, PED) will be provided by the appropriate offices and incorporated into the estimate.

The Cost Engineering Appendix will include a written description of the methodology used to develop the baseline cost estimate. The appendix also will include a description of the scope of the projects included in the estimate and a description of the potential risk and uncertainty associated with the estimate. Estimates will include both Federal and non-Federal costs for construction, real estate, engineering and design, cultural resources, construction management, HTRW investigations, and remediation of potential project impacts. The preliminary, comparative cost estimates that were used for alternative screening and incremental analyses also will be included in the appendix. The Rock Island District's Engineering Division (or its contractor) will perform this task.

The task will require 60 person days and cost $30,000. Thirty working days should be allowed for completion of this task once the feasibility projects are defined in detail.

Major Task JHD OMRR&R Cost Estimate

This activity includes all deliverables related to the preparation of the Operation, Maintenance, Repair, Rehabilitation, and Replacement (OMRR&R) cost estimates. The preliminary, comparative cost estimates that were used for alternative screening and incremental analyses also will be included. The Rock Island District's Engineering Division (or its contractor) will perform this task.

The task will require 20 person days and cost $10,000. Twenty working days should be allowed from start to finish of this task.

Major Task JHE Baseline Fully Funded Cost Estimate

The fully funded cost estimate will be prepared based on the project cost estimate developed in Task JHCB - Feasibility Level Cost Estimates. The project cost estimate will be updated, revised, and escalated for inflation through completion of the project. The fully funded cost estimate will be used to support the Project Management Plan (PMP) and upward reporting requirements. The Rock Island District's Engineering Division (or its contractor) will perform this task.

The task will require 20 person days and cost $10,000. Ten working days should be allowed from the start to finish of this task.

Major Task JHF All Other Cost Estimates

A cost estimate will be developed for a monitoring program that begins two years prior to construction and ends two years following completion of construction. This estimate will be included in the feasibility level and fully funded cost estimates. Cost for preparation of the adaptive management plan (of which the monitoring program is a principal component) also will be included in the PED cost estimate. The Rock Island District's Engineering Division (or its contractor) will perform this task.

The task will require 20 person days and cost $10,000. Twenty-four working days should be allowed from start to finish of this task.

The total of all activities to complete Sub-Product JH - Cost Estimates is $90,000.

Sub-Product JI Public Involvement Documents

Public involvement is the exchange of information to and from various segments of the public. The purpose "is to ensure that U.S. Army Corps of Engineers programs are responsive to the needs and concerns of the public." (ER 1105-2-100, Appendix L - Public Involvement.)

The goals of a public involvement plan are to inform and educate the public and solicit feedback through open communication; and include in the plan formulation process all publics interested in and affected by the study recommendation(s).

Various "public groups" have been identified as target audiences for public involvement and coordination for this study. These groups include, *but are not limited to,* the following: (1) Elected congressional officials; (2) Federal agencies: U.S. Army Corps of Engineers, U.S. Fish and Wildlife Service, U.S. Geological Survey, U.S. Environmental Protection Agency, U.S. Department of Agriculture (NRCS), Federal Emergency Management Agency; (3) State agencies: Illinois Department of Natural Resources, Illinois Environmental Protection Agency, Illinois Department of Agriculture, Soil and Water Conservation Districts; (4) Local offices/groups: State Ecosystem Partnership Groups, Nature Conservancy of Illinois, Tri-County Regional Planning Commission, Heartland Water Resources Council, Tri-County Riverfront Action Forum, Green Strategies, county governmental officials, city governmental officials, farm bureau, Sierra Club, Izaak Walton League, Audubon Society, Ducks Unlimited, other special interest groups; (5) the media, and (6) the unaffiliated general public. An additional "public" that is affected throughout this study is the project team.

The feasibility study will include a public involvement program designed to meet National Environmental Policy Act (NEPA) requirements and the requirements of ER 1105-2-100; inform the public and government agencies about the condition of the Illinois River basin and its problems; obtain public input to the problem identification, alternative formulation, and project selection process; ensure that public and agency concerns are addressed; and keep the public and agencies apprised of the study goals, study progress, and proposed projects. The results of the public involvement program will be documented in a Public and Agency Coordination Appendix to the Feasibility Report that will include notices of meetings, meeting summaries, copies of pertinent letters, and other items appropriate to public involvement.

Major Task JIA Public Meetings

A series of public meetings (or versions thereof) are proposed to be held three times during the feasibility study to correspond with critical points/significant activities in the study. Each of the three series of meetings will be held at six sites within the Illinois River system. The first series of meetings will be held at the study's initiation, the second at the study's mid-point, and the third at the study's conclusion.

Task JIAA Study Initiation Public Open House

A public open house will be held early after the study's initiation. The open house will be held in six sites within the study area. Areas will be set up for study team members from each discipline to meet with the public on a one-to-one basis to educate them on the purpose and goals of the feasibility study, discuss with them identified potential ecosystem restoration sites, and to gather information from them about additional sites. The open house conduct and results will become part of the official meeting record.

Tasks will include designing the open house, making logistical arrangements (including meeting room, audio-visual equipment, vehicles, and hotel reservations), preparing informational material (e.g., sign-in sheets, comment sheets, other handouts), coordinating with the study team, and attending the open houses.

This task will require 21 person days (Public Involvement Specialist) and 10 person days (Social Science Analyst) and cost $14,200. Additional costs include reproduction of materials, meeting room and equipment cost, and per diem. Approximate *per meeting* cost for these items is $2,250, which includes reproduction ($300), meeting room and equipment cost ($750), and per diem ($1,200). The cost for the six meetings is $13,500. Total cost for this task is $27,700.

Task JIAB Study Mid-Point Public Open House

After additional information is collected from maps and further study, screening criteria will be used to evaluate, narrow, and prioritize the sites and to review them in greater detail. The public will be invited to attend another round of six open houses to learn about the prioritized sites and to provide comments to the study team. The format will be as described above. The open house conduct and results will become part of the official meeting record.

Tasks will include designing the open house, making logistical arrangements (including meeting room, audio-visual equipment, vehicles, and hotel reservations), preparing informational material (e.g., sign-in sheets, comment sheets, other handouts), coordinating with the study team, and attending the open houses.

This task will require 21 person days (Public Involvement Specialist) and 10 person days (Social Science Analyst) and cost $14,200. Additional costs include reproduction of materials, meeting room and equipment cost, and per diem. Approximate *per meeting* cost for these items is $2,250, which includes reproduction ($300), meeting room and equipment cost ($750), and per diem ($1,200). The cost for the six meetings is $13,500. Total cost for this task is $27,700.

Task JIAC Study Conclusion Public Meeting

A final public meeting will be held at the conclusion of the study to announce the study's findings and recommendation(s) to the public and to allow time for comments to be incorporated into the final report. The meeting will be held after the Feasibility Phase Issue Resolution Conference and the release of the draft report to announce the Corps' findings.

A series of public meetings will be held in six locations throughout the study area. The study team will present the study's findings and the public will have the opportunity to ask questions and make formal statements. A court stenographer will be present to record the proceedings of each meeting. The data obtained from the concluding meetings will be used by all of the study disciplines for final report preparation.

Tasks will include designing the public meeting, making logistical arrangements (including meeting room, court stenographer, and audio-visual equipment), preparing informational material (e.g., sign-in sheets, comment sheets, other handouts), and attending the meetings.

This task will require 21 person days (Public Involvement Specialist) and 10 person days (Social Science Analyst) and cost $14,200. Additional costs include reproduction of materials, meeting room and equipment cost, court stenographer fees, and per diem. Approximate *per meeting* cost for these items is $2,700, which includes reproduction ($300), meeting room and equipment cost ($750), court stenographer fees ($450), and per diem ($1,200). The cost for the six meetings is $16,200. Total cost for this task is $30,400.

Major Task JIB Minutes of Public Meetings

After each of the three meetings described above, the Rock Island District's Planning, Programs, and Project Management Division will prepare an After-Action Report that will summarize the logistics of the meeting, the effectiveness of the meeting, and the comments received at the meeting. The After-Action Report will be provided to the project team. A summary of the After-Action Report will be included in the subsequent newsletter and will be used to supplement the

Public and Agency Coordination Appendix to the Feasibility Report. The After-Action Report on whichever workshop serves as the scoping meeting will be used for NEPA Documentation.

This task will require 2 person days (Public Involvement Specialist) and 10 person days (Social Science Analyst) and cost $5,700 per after-action report. Based on three meetings, the total effort will require 30 person days and cost $17,100.

Major Task JIC Public Comments Report

A brief summary of the comments received during and after the open houses, the Issue Resolution Conference, and the public meeting, and as a result of the newsletters, will be prepared and kept on file in the Rock Island District. The summary of the comments is called content analysis.

Content analysis is necessary to identify public opinion, study concerns, and potential controversy. It will ensure that the public involvement plan is responsive to the level of interest and concern expressed by the public, and will assess the effectiveness of the public involvement techniques. ER 1105-2-100, Appendix L, states that the objectives of content analysis techniques are to "summarize and display public comment in such a way that maximum information is available to decision-makers and the public about what was said."

Content analysis techniques and automated measures code, store, retrieve, summarize, and display public comments in a systematic, objective, visible, and traceable manner. This allows for maximizing information available to decision-makers.

A statistical assessment of comments received, viewpoints expressed, and support or opposition to proposed alternatives will be summarized and stored using microcomputer software. The information will be furnished to all members of the project team and will be used to supplement the Public and Agency Coordination Appendix to the Feasibility Report. This task will require 30 person days (Social Science Analyst) and cost $15,000.

Major Task JID Newsletters

A study newsletter will be prepared at the beginning of the study and semi-annually through the study's completion. (Note: The timing of the eight newsletters may vary somewhat to coincide with study activities.) Several sub-tasks are involved in preparing and releasing a newsletter. Before a newsletter can be released to the public, the public must be identified, the newsletter must be written, prepared for printing, printed, prepared for mailing, and mailed. The sub-tasks involved in releasing a newsletter to the public are described below.

Task JIDA Identify Affected Publics—Build/Maintain Mailing List

Agencies, organizations, and individuals affected by or interested in the project will be identified by gathering names from existing data bases, public meetings, telephone communications, and correspondence. Additional research will be involved to expand the data base for the large study area. The mailing list will be stored on a computer data base that will be updated throughout the study. When sending information to the public, mailing labels will be prepared from the updated data base. This task will require 20 person days (Public Involvement Assistant) and cost $5,700.

Task JIDB Prepare Newsletters

Eight study newsletters will be prepared at appropriate times throughout the study (study initiation information, announcing public meetings, and sharing of status and findings). This task includes gathering information for the newsletter; writing the newsletter; preparing a camera-ready copy of the newsletter for printing; scheduling, coordinating, and printing the newsletter; preparing the newsletter for mailing, and mailing the newsletter.

This task will require 7 person days (Public Involvement Specialist), 3 person days (Public Involvement Assistant), and 1 person day (Student Aide) and cost $4,200 per newsletter. Reproduction costs will be $1,000. Total cost for this task is $5,200 per newsletter. Based on eight newsletters, the total cost will be $41,600.

Major Task JIE All Other Public Involvement Documents

Other public involvement tasks that will occur throughout the study are listed below.

Task JIEA Public and Agency Coordination Appendix

The results of the public involvement program will be documented in a Public and Agency Coordination Appendix to the Feasibility Report. The appendix will summarize the public involvement techniques used to involve the public throughout the study and the effectiveness of those techniques; summarize the results of all public meetings; and summarize all public comments received. This task will require 20 person days (10 days each for a Public Involvement Specialist and a Social Science Analyst) and cost $9,300.

Task JIEB Provide Assistance to Project Team

Other public involvement activities will include assisting project team members with the following tasks: responding to inquiries from the general public, agencies, and congressional interests; preparing briefings; and preparing visual aids for briefings. This task will require 10 person days and cost $4,700. Additional costs include preparation of audio-visual materials. Total cost is $5,700.

Task JIEC Attend Project Team Meetings

Attendance at all project team meetings is necessary to keep abreast of study progress. This task will require 10 person days (6 days for a Public Involvement Specialist and 4 days for a Social Science Analyst) and cost $4,600.

Task JIED Prepare Logistics for Feasibility Phase Issue Resolution Conference (FRC)

ER 1105-2-100, Appendix O, requires that a Feasibility Phase Issue Resolution Conference be held before the release of the feasibility report to the publics. ER 1105-2-100, Appendix O, further details the structure of a typical FRC.

Tasks will include making logistical arrangements for the Feasibility Phase Issue Resolution Conference (including meeting room and audio-visual equipment), helping with the preparation of meeting materials, and attending the meeting.

This task will require 4 person days (Public Involvement Specialist) and cost $1,800. Additional costs include reproduction of materials ($300), meeting room and equipment cost ($750), and per diem (for two - a Public Involvement Specialist and a Social Science Analyst) ($1,200). Total cost for this task is $4,050.

Task JIEE Coordinate with District Public Affairs Office

Newsletters and other study information will be provided to Rock Island District's Public Affairs Office. The Public Affairs Office will then create a news release for dissemination to the media. (Note: Public Affairs costs are not a part of this cost estimate.) This task will require 4 person days (Public Involvement Specialist) and cost $1,800.

Task JIEF Support to Plan Formulation

The Public Involvement team will support the formulation and study decision making. In addition, the appropriate supervision and oversight will be provided to the public involvement team and any contractors. This task will require 35 person days and cost $19,350.

The total of all activities to complete Sub-Product JI - Public Involvement Documents is $210,000 (including supervisory and contingency fees).

Sub-Product JJ Plan Formulation and Evaluation Report

The project team will follow the six-step planning process and guidelines for conducting ecosystem restoration studies specified in ER 1105-2-100. Steps in the plan formulation process will include:

1. The specific problems and opportunities that will be addressed in the study will be identified, and the causes of the problems will be discussed and documented. Planning goals will be set, objectives will be established, and constraints will be identified. Ecosystem structures and functions that will influence the success of the effort will be identified. The quantitative/qualitative measures that will be used to measure the outputs of ecosystem restoration plans will be developed and identified.

2. Existing and future without-project conditions will be identified, analyzed, and forecast. The existing condition of resources, problems, and opportunities critical to plan formulation, impact assessment, and evaluation will be characterized and documented.

3. The project team will formulate alternative ecosystem restoration and project plans that will address the planning objectives. Following initial system evaluations, concept level designs will be prepared for approximately two to three specific restoration projects. If these projects appear feasible, detailed design and cost estimates will be prepared. As the system evaluation is further completed, additional restoration projects will be identified, as necessary, based on the study analysis for design and cost estimation. Scales of alternatives will be developed, as appropriate, for each project site. Non-structural plans for watershed management considered to be essential to the success of restoration efforts (e.g., erosion and sedimentation reduction measures, stormwater management, non-point source pollution control, etc.) will be identified and formulated.

4. Alternative project plans will be evaluated for effectiveness, efficiency, completeness and acceptability. The impacts of alternative plans will be evaluated using the system of accounts

framework specified in *Principles and Guidelines* and ER 1105-2-100 (National Economic Development, NED, and National Ecosystem Restoration, NER).

5. Alternative plans will be compared. A cost effectiveness and incremental cost analysis in combination with other identified criteria will be conducted to prioritize and rank alternatives. The public involvement program will be used to obtain public input to the alternative evaluation process.

6. A plan will be selected for recommendation and a justification for plan selection will be prepared.

A project manager will be assigned from the Rock Island District's Planning, Programs, and Project Management Division to lead the plan formulation effort. The non-Federal sponsor also will assign a project coordinator to work with the Corps project manager and coordinate non-Federal in-kind services. The Corps project manager and the non-Federal project coordinator will lead the project team and coordinate the plan formulation process.

The following tasks will be completed by the Planning, Programs, and Project Management Division project manager, his/her supervisor, and the non-Federal sponsor's project coordinator. The costs of participation in plan formulation activities by the rest of the project team are included in their technical study estimates under the appropriate sub-products.

Major Task JJA Project Management Coordination

Project management/Plan Formulation activities include frequent coordination with technical elements, response to congressional or other study related inquiries, and maintaining open dialogue with the non-Federal sponsor, MVD, and other agencies and interests.

Task JJAA Study Coordination

Considerable effort will be placed on coordinating team efforts; meeting with the sponsor and potential partner agencies and organizations; and ensuring upward reporting within the Corps of Engineers organization. Efforts under this task include coordinating, arranging, and facilitating regular team meetings and briefing Corps of Engineers staff and the non-federal sponsor on study progress. Specifically, a District Coordination meeting will be held with all project team members, including the non-Federal sponsor, shortly after the initiation of the feasibility phase. The purpose of the meeting will be to plan and coordinate activities between the different technical disciplines responsible for performing portions of the feasibility study investigations. The project manager will also ensure that all data collection activities are proceeding as scheduled and that the information collected is properly disseminated.

This task will require 300 person days at a cost of $150,000.

Task JJAB In Progress Review (IPR) Briefing and Report

A checkpoint conference will be scheduled midway through the formulation effort after the preliminary formulation of alternatives to ensure that the Corps and the non-Federal sponsor focus their resources on alternatives that are in the Federal interest. The checkpoint conference will take the form of an In Progress Review Briefing in accordance with PGL 97-10.

The In Progress Review is an interim checkpoint conference attended by the Rock Island District, the non-Federal sponsor(s), and the Mississippi Valley Division (MVD). The purpose of the IPR is to review study findings concerning ecosystem problems and needs; to evaluate the array of alternatives and determine their consistency with the Federal interest; and to review the preliminary analysis of the environmental, economic, social, and regional impacts of alternatives. The IPR will be scheduled when technical studies such as hydrologic modeling, restoration needs assessment, baseline environmental investigations, and initial site-specific focus area analyses have progressed to the point where a determination can be made on whether potential alternatives are in the Federal interest.

This meeting will be a key decision point in determining whether alternatives meet Federal and non-Federal policies and budgetary criteria and should be retained for detailed analysis. This task will be performed by the Rock Island District's Planning, Programs, and Project Management Division (or its contractor).

The task will require 40 person days and cost $20,000.

Major Task JJB Plan Formulation Support Technology

Based on the large study area and scope of the study, extensive use will be made of Geographic Information Systems (GIS) technology to summarize, analyze, and synthesize project information. In addition coordination and information sharing will be facilitated through maximizing the use of internet and electronic communications.

Task JJBA Study Formulation Site

Facilitate coordination and information sharing through establishing and maintaining a project intra/internet site. This will facilitate ease of information sharing between team members, the sponsor, and interested individuals and assist in timely completion of tasks being conducted concurrently at numerous sites. The web site will be developed to include such information as study schedule, draft products reports, site photographs, maps, etc.

This task will require 120 person days and cost $60,000.

Task JJBB GIS - Data Gathering

Efforts will be made to gather information regarding the various coverages available relating to the ecology, geography, land uses, etc. of the Illinois River Watershed. A summary of available coverages will be put together for other members of the study to review and evaluate in overall formulation efforts. This task will require 100 person days and cost $50,000 (40 person days Federal = $20,000 and 60 person days non-Federal = $30,000).

Task JJBC GIS - Analysis and Synthesis

Using available coverages, analyses will be preformed to assist in the identification of potential project sites, evaluate project features, and screening of alternative. These efforts will involve efforts associated with each of the major project focus areas: Watershed Stability, Main Channel and Backwater Modification, Water Level Management, Floodplain Restoration and Protection, and Site-Specific Evaluations.

This task will require 100 person days and cost $50,000.

Task JJBD GIS - Map and Summary Information

Maps and other GIS products will be developed to assist in presenting and communicating project information to the public and in the reports. This task will require 100 person days and cost $50,000.

Major Task JJC Plan Formulation

Plan formulation involves the development and evaluation of alternative solutions to the problems identified during the reconnaissance study and refined during the feasibility study. "Without-project" future conditions will be assessed for each site selected and compared to the "with-project" future conditions for each alternative. Technical plan formulation activities will include: restoration site selection, development of alternative plans, and supervision of the alternative evaluation and selection process.

The project manager will closely monitor the progress of technical investigations and ensure that the study complies with the provisions of ER 1105-2-100, *Guidance for Conducting Civil Works Planning Studies;* and ER 1165-2-501, *Water Resource Policies and Authorities, Civil Works Ecosystem Restoration Policy.* All measures formulated during the feasibility study must demonstrate that the proposed restoration measures will result in restoration of unique and significant habitat. Restoration activities must result in measurable improvements to fish and wildlife habitat, and not solely water quality benefits.

Task JJCA Identify Problems and Opportunities

Additional efforts will be taken to further define the specific problems facing the Illinois River Watershed, their causes, and opportunities available to address these issues. Planning objectives and constraints and plan formulation rationale and criteria will be developed. This task will require 20 person days and cost $10,000.

Task JJCB Establish Without-Project Conditions

Without-project conditions will be developed and refined in the early stages of the feasibility study based on restoration needs assessment, environmental, hydrologic, institutional and socioeconomic input. This task will be performed by the Rock Island District's Planning, Programs, and Project Management Division (or its contractor) and the non-Federal sponsor. This task includes two cost items. The first relates to developing an overall without project condition for the entire Illinois River Basin, the second involves separately addressing the without-project condition for each specific project site being evaluated in detail.

Overall Illinois River System - General
The task will require 40 person days and cost $20,000.

Specific Restoration Sites - Site Level
The task will require 20 person days and cost $10,000 per site. Assuming two sites, the task will require 40 person days at a cost of $20,000. In total, this task will require 80 person days and cost $40,000.

Task JJCC Formulation of Alternatives and Application to Restoration Needs

Throughout the study process, the project manager will lead the project team in identifying and screening alternative sites and projects within the Illinois River Watershed falling under the four broad study focus areas. Based on the two-phase restoration needs assessment (RNA), water level management analysis, floodplain restoration and protection assessment, and public involvement, the project team will identify potential alternative sites, develop concept level designs and venture level cost estimates, and conduct a qualitative assessment of ecosystem restoration outputs. This information, plus information obtained from the public in an initial set of public workshops, will be used to develop a list of potential project sites and restoration needs. The results of this effort will be documented in a technical memorandum that will be provided to the Executive Committee and MVD prior to the In Progress Review Briefing. The Planning, Programs, and Project Management Division project manager and the project coordinator for the non-Federal sponsor will review the information provided by the project team and lead the plan formulation process. The project manager will summarize the results of the technical studies leading to recommendations regarding system needs in a formulation report. The formulation report will be a brief, interim document which discusses overall system needs, various potential locations, preliminary designs, and cost estimates for addressing system needs which are recommended for further study. As appropriate, a preliminary cost effectiveness and incremental cost analysis will also be provided to support the alternative selection process. This task will be performed by the Rock Island District's Planning, Programs, and Project Management Division (or its contractor).

The task will require 150 person days and cost $75,000.

Task JJCD Development of Restoration Prioritization and Implementation Framework

Following completion of major portions of the feasibility study and assessment of potential alternatives, an effort will be taken to assess overall system restoration needs. If considerable restoration needs exist, a recommendation for further efforts to address the need and implement solutions will be made. This is anticipated to take the form of an ongoing program/continuing authority allowing for adaptive management using watershed and ecosystem approaches to implementing restoration projects to meet system needs.

While the final evaluation and recommendation of all specific future project needs will not be made as part of the feasibility study, as part of this task a framework will be developed to identify a specific approach and criteria to use in evaluating and prioritizing specific restoration sites. The framework will include an identification of areas of critical need, relationship to overall system needs, cost effectiveness and incremental cost analysis, significance, sustainability, and potential restoration mechanisms. In addition, an approach will be developed regarding the assessment/monitoring of initial restoration efforts to provide information for use making adaptive management decisions regarding future sites.

It is anticipated that the plan formulation and selection framework will be based on inputs from the cost effectiveness and incremental cost analysis, the analysis of with- and without-project conditions, relationship of the project to overall system needs, significance, sustainability, the analysis of socioeconomic data, and other identified criteria. If authorized, this process will then be followed to implement projects as appropriate under an ongoing program.

The task will require 150 person days and cost $75,000.

Task JJCE Formulation of Specific Site Restoration Projects

Building on efforts of the phase one restoration needs assessment (RNA) efforts, a meeting will be held to bring together recognized scientific expertise from the Corps, State, and other agencies and interests whom using available information will identify key areas in need of restoration. The outcome of this meeting will involve identifying two to three critical project sites and initiating site-specific efforts to identify and develop specific project design options for each of these sites. An interim report summarizing this process will be prepared. A facilitation contractor may be utilized to facilitate the meeting. The task will require 60 person days and cost $30,000.

Task JJCF Cost Effectiveness and Incremental Cost Analysis

A benefit-cost analysis is not prepared for ecosystem restoration projects. Instead, Corps of Engineers guidance requires that a cost effectiveness and incremental cost analysis be performed for all restoration projects, in accordance with the requirements of ER 1105-2-100. The purpose of this analysis is to determine the most cost-effective restoration plan for each of the site-specific areas in terms of cost per unit of ecological output. The incremental cost analysis will display the incremental ecological gains and incremental costs for moving to successively higher levels of restoration. This information will be provided as a factor to consider in selecting the optimal restoration plan. The ecological outputs of restoration plans will be developed as a part of Sub-Product JD - Environmental Studies/Reports. The cost effectiveness and incremental cost analysis will be accomplished by the Rock Island District's Planning, Programs and Project Management Division (or its contractor).

This task will require 60 person days and cost $30,000.

Task JJCG Plan Formulation Report

The project manager will summarize the results of the technical studies leading to a study recommendation in the Plan Formulation Report. The report will document the needs analysis, alternative formulation, evaluation and selection process that was used to identify any specific plans and/or the need for a continuing authority. The costs and benefits and environmental and hydraulic impacts of alternatives presented in the report will be developed at the feasibility level of detail, although the detailed technical appendices will not be prepared by this time. This task will be performed by the Rock Island District's Planning, Programs, and Project Management Division (or its contractor).

The task will require 150 person days and cost $75,000.

Major Task JJD Alternative Formulation Briefing (AFB)

The purpose of the Alternative Formulation Briefing is to provide for review of the alternative formulation and tentative selected plan/tentative recommendation prior to preparation of the Draft Feasibility Report. The final problem identification, system needs, alternative formulation, and selection process will be reviewed and discussed. The restoration, prioritization and implementation framework will be presented and discussed, as well as the issue of continuing Federal and sponsor interest. Proposed alternatives will be reviewed at the meeting. If the non-Federal sponsor has a preferred alternative that differs from the federally recommended plan, it will be identified and reviewed at this time. The plan formulation report, along with materials identifying and discussing any policy issues requiring resolution or other significant issues, will be

submitted to HQ (CECW-P) and MVD at least 21 days before the conference. The sponsor's ability to pay its share of project implementation and OMRR&R costs also will be reviewed.

The task will require 30 person days and cost $15,000.

Major Task JJE AFB Guidance Memorandum & MVD Approval of Formulation Material

Following the Alternative Formulation Briefing, Corps HQ (CECW-P) will provide a guidance memorandum to the Mississippi Valley Division (MVD) office within 15 working days after the Alternative Formulation Briefing (AFB). The District then is responsible to ensure that any concerns identified are addressed prior to release of the Draft Feasibility Report. The Mississippi Valley Division (MVD) will approve the plan formulation material presented at the AFB as a basis for the District to prepare the Draft Feasibility Report. This task will be performed by HQ CECW-P and MVD and is funded out of separate Civil Works appropriations.

Major Task JJF Quality Assurance/Quality Control

In accordance with ER 1110-1-12, *E&D Quality Management*, the project manager will prepare a Quality Control Plan (QCP) for executing a quality engineering product. The plan includes discussion on the conduct of the Independent Technical Review (ITR), customer requirements and expectations, technical criteria, technical and policy design quality verification procedures, schedule, and compliance checklists for quality control reviewers.

This ITR task involves Corps of Engineers internal review of the study products. The members are assigned to the team to review the overall report or interim products for the approach and technical adequacy. This task will be performed by the Corps of Engineers managers and the non-Federal sponsor.

The task will require 150 person days and cost $75,000.

The total of all activities to complete Sub-Product JJ - Plan Formulation and Evaluation Report is $805,000.

Sub-Product JK Draft Report Documentation

A draft Feasibility Report will be prepared following the guidance contained in ER 1105-2-100. With minor revisions, the plan formulation report will be suitable for incorporation into the Feasibility Report as the main report section. Detailed appendices will be prepared documenting the results of the technical analyses. The contents of the Draft Feasibility Report are summarized below:

1. Concise main report summarizing the study's technical findings, conclusions and recommendations;
2. A draft NEPA document;
3. Technical appendices presenting the detailed backup and results of individual work tasks;
4. An appendix containing the sponsor's financial capability statement and preliminary financing plan; and
5. Other supporting documentation including the Project Management Plan (PMP).

Major Task JKA Feasibility Review Conference (FRC) Documents

The planning project manager will prepare a Memorandum for the Record (MFR) documenting the issues discussed and decisions reached at the FRC. The MFR will be prepared by the District's Planning, Programs, and Project Management Division and forwarded to the Mississippi Valley Division, U.S. Army Corps of Engineers, for approval, along with other appropriate documents, as required. This task will be performed by the Rock Island District's Planning, Programs, and Project Management Division (or its contractor and will require 10 person days and cost $5,000.

Major Task JKB Public Review Comments

This task involves reviewing and preparing responses to letters received from agencies and the public in response to the Draft Feasibility Report. Responses to the comments will be included in the Final Feasibility Report. This task will be performed by the Rock Island District's Planning, Programs, and Project Management Division (or its contractor and will require 10 person days and cost $5,000.

Major Task JKC Project Guidance Memorandum (PGM)

This task includes directive guidance prepared by HQUSACE for the work to be accomplished to obtain approval of the Final Feasibility Report. This task will be performed by HQUSACE and will be funded through separate appropriations.

Major Task JKD All Other Draft Feasibility Documents

Preparation of the Draft Feasibility Report includes assembling, writing, editing, typing, drafting, reviewing, reproducing, and distributing the draft report, draft NEPA document and other related documentation required for transmittal by HQUSACE to higher authorities for use as a decision document. The Draft Feasibility Report and Draft NEPA document will be prepared by the Rock Island District's Planning, Programs, and Project Management Division. The costs of preparing the Draft NEPA document and the technical appendices to the Feasibility Report are included under other sub-products. Preparation of the Draft Feasibility Report will be performed by the Rock Island District's Planning, Programs, and Project Management Division (or its contractor). This task will require 150 person days and cost $75,000.

The total cost of all activities to complete Sub-Product JK - Draft Report Documentation is $85,000.

Sub-Product JL Final Report Documentation

The Final Feasibility Report will incorporate comments from agencies, the public, and higher authority review. The steps in producing a Final Feasibility Report include the following:

1. Finalize Draft Feasibility Report for internal/sponsor review;

2. Conduct review board meeting and revise and reproduce draft report for submission to MVD and HQUSACE;

3. Revise draft report in response to MVD and HQUSACE comments;

4. Modify draft report in response to comments during agency and public comment review;

5. Coordinate with sponsor and internal elements; and

6. Reproduce Final Feasibility Report for distribution.

Major Task JLA Division Commander's Notice

A public notice will be prepared announcing completion of the Division Commander's Report, based on his endorsement of the findings and recommendations of the District Commander, and will indicate that the report has been submitted for Washington Level Review. This task will be performed by the Rock Island District's Planning, Programs, and Project Management Division. The task will require 4 person days and cost $2,000.

Major Task JLB All Other Final Feasibility Report Documents

The Final Feasibility Report and Final NEPA document will be prepared by the District's Planning, Programs, and Project Management Division. The costs of preparing the final NEPA document and the technical appendices are included under other sub-products. Preparation of the Final Feasibility Report will be performed by the Rock Island District's Planning, Programs, and Project Management Division (or its contractor) and the non-Federal sponsor. This task will require 42 person days and cost $21,000.

The total cost of all activities to complete Sub-Product JL - Final Report Documentation is $23,000.

Sub-Product JM Washington Level Report Approval

This sub-product includes activities necessary for submittal of the Final Feasibility Report to Congress after completion of all levels of review. To ensure that the non-Federal sponsor is afforded an opportunity to participate in any significant effort as a result of Washington level review, funding for the District and the non-Federal sponsor is included as a separate work item in the PSP. These costs, including any necessary travel, will be limited to those reasonable costs associated with the review and processing of the Feasibility Report. In accordance with EC 1105-2-108, this item will be 5 percent of the total study cost or $50,000, whichever is less, and will be cost-shared equally between the Corps of Engineers and the non-Federal sponsor. Accordingly, $50,000 is included in the estimate for this task.

Major Task JMA Policy Review Approval

A written assessment of the final Feasibility Report will be prepared by the Washington Level Review Center (WLRC) to document the Feasibility Report's compliance with current policy. This task will be performed by HQUSACE and will be funded through separate appropriations.

Major Task JMB Chief's Report

A brief summary of the Feasibility Report, signed by the Chief of Engineers, will be prepared to transmit recommendations to the Assistant Secretary of the Army for Civil Works. This task will be performed by HQUSACE and will be funded through separate appropriations.

Major Task JMC OMB Report Approval

A letter will be prepared from Office of Management and Budget (OMB) to ASA (CW) expressing the Administration's position regarding transmitting the report to Congress for authorization. This task will be performed by OMB and will be funded through separate appropriations.

Major Task JMD ASA(CW) Report Approval

A letter will be prepared from ASA(CW) transmitting the Feasibility Report along with ASA (CW)'s recommendation to Congress. This task will be performed by ASA(CW) and will be funded through separate appropriations.

The total cost of all activities to complete Sub-Product JM - Washington Level Report Approval is $50,000.

Sub-Product JN All Other Feasibility Studies/Investigations

No additional feasibility studies/investigations will be required.

Sub-Product JO Damages Assessed Architect-Engineer (A-E) Contractors

Documents that determine and assess the liability for inadequate A-E efforts will be prepared, if appropriate.

Sub-Product JP Management Documents

This sub-product includes all of the documents related to the management of the Feasibility Report, including A-E contract administration and in-house control.

Major Task JPA A-E Contract Documents

This activity includes preparation of negotiation, award and contract administration documents for the utilization of A-E contractors to complete, or assist in the completion of, Feasibility Phase products. The cost of obtaining A-E services is included in the study cost estimates of the technical study sub-products.

Major Task JPB Coordination Documents

Copies will be made of letters exchanged with the non-Federal sponsor that affect study costs, scopes of work and/or schedules; official correspondence with higher authority on similar subjects; internal memoranda which bear on significant study elements; and, in general, any other correspondence with affects significant aspects of the study. This task will be performed by the Rock Island District's Planning, Programs, and Project Management Division and the non-Federal sponsor and will require 10 person days and cost $5,000.

Major Task JPC Project Funds Control Documents

This task includes preparation and management of internal funds control documents for the allocation and management of the feasibility study. The Rock Island District's Planning, Programs, and Project Management Division's Project Manager (PM) is responsible for managing the overall study cost, schedule, present and future budget year submissions, and fiscal

coordination with the non-Federal sponsor. A representative of the non-Federal sponsor will assist in project management tasks. The Rock Island District PM, with assistance of the non-Federal project coordinator, will monitor expenditures, keep the PSP current, prepare project management reports, report to the Project Review Board (PRB), and report study status and issues to the District Commander and the Executive Committee. The project management structure will continue into the pre-engineering and design and construction phases. Updates of PSP will include monthly finance and accounting reports regarding expenditures and obligations, executive summary reports for the PRB, schedule and cost changes, and changes to work elements.

This task includes preparation of budget documents and financial reports. At the end of the study, a final audit will be performed. Work required to prepare a sponsor letter of intent to participate in the Pre-construction Engineering and Design (PED) and construction phases will also be prepared under this task. This task will be performed by the Rock Island District's Planning, Programs, and Project Management Division and the non-Federal sponsor.

The Corps project manager will also develop a detailed study plan, annually prepare budget testimony, monitor funds and work progress to ensure tasks are completed on time and within budget.

This task will require 150 person days and cost $75,000.

Major Task JPD Trip Reports

The PM will prepare written trip reports that document the initial site visits, meetings with the potential local sponsor where decisions are formulated, and other significant trips that affect the scope, cost, or schedule of the Feasibility Report or the project. This task will be performed by the Rock Island District's Planning, Programs, and Project Management Division and the non-Federal sponsor and will require 20 person days and cost $10,000.

Major Task JPE Minutes of Technical Review Conference (TRC)

Minutes will be prepared on the results of the TRC. Comments received on the technical aspects of the Feasibility Report as reviewed concurrently at the Technical Review Conference with the District, MVD, and HQUSACE and will be documented and responses prepared. The cost of preparing the TRC minutes is included under Sub-Product JJ - Plan Formulation and Evaluation Report. The cost of participation by the Rock Island District's Planning, Programs, and Project Management Division in the TRC and the preparation of the minutes and responses will be included. This task will require 10 person days and cost $5,000.

Major Task JPF All Other Management Documents

This task includes all other appropriate management documents that are determined to be needed on a case-by-case basis. Responsibility for project management lies with the Rock Island District Planning, Programs, and Project Management Division's PM in cooperation with the non-Federal sponsor. This task involves macro-level tracking, monitoring and upward reporting of the study progress through MVD and the Washington Level Review conducted by the Corps of Engineers.

The PM will ensure that all required tasks and coordination are performed in accordance with the PSP and FCSA. Budget preparation, correspondence, inter-organizational coordination, and point-of-contact responsibilities are part of project management. The PM will organize, set the agenda for, and moderate PRB meetings. Duties such as assigning and negotiating study tasks to technical

elements, scheduling the study, coordinating between technical elements, monitoring and modifying assigned work items as required, and reviewing results and reports provided by the technical support staff and preparing and responding to technical correspondence are the responsibility of the Planning, Programs, and Project Management Division and are accounted for under Sub-Product JJ - Plan Formulation and Evaluation Report.

Project management also involves the preparation and review of a draft and final Project Management Plan (PMP) for any recommended water resources project that would enter the plans and specifications phase. The draft PMP will be attached to the draft Feasibility Report. The PMP will describe the project activities required during the Pre-construction Engineering and Design (PED) and construction phases and is the basis for preparing the project cost-sharing agreement.

This task will be performed by the Rock Island District's Planning, Programs, and Project Management Division and the non-Federal sponsor and will require 30 person days and cost $15,000.

Task JPFA Executive Committee & PRB Coordination

This task will be performed by the Rock Island District's Planning, Programs, and Project Management Division and will require 80 person days and cost $40,000.

Task JPFB Budget Preparation

This task will be performed by the Rock Island District's Planning, Programs, and Project Management Division and will require 50 person days and cost $25,000.

Task JPFC PMP Preparation

This task will be performed by the Rock Island District's Planning, Programs, and Project Management Division and will require 50 person days and cost $25,000.

Task JPFD Cost Estimates - Prep/Update/Coordinate

This task will be performed by the Rock Island District's Planning, Programs, and Project Management Division and will require 30 person days and cost $15,000.

Task JPFE Budget Briefings

This task will be performed by the Rock Island District's Planning, Programs, and Project Management Division and the non-Federal sponsor and will require 30 person days and cost $15,000.

The total cost of all activities to complete Sub-Product JP - Management Documents is $230,000.

Product K Project Cooperation Agreement (PCA)

The Project Cooperation Agreement (PCA) documents are the cost-sharing aspects, relative roles, and responsibilities for the project, and contain an analysis of the local sponsor's general ability to meet its responsibilities under the terms of the PCA.

Sub-Product KA Initial Draft PCA Package

The Initial Draft PCA Package accompanies the Feasibility Report and includes: (1) the applicable model PCA for an ecosystem restoration project (see ER 1105-2-100 and ER 1165-2-131); (2) Federal/non-Federal allocation of funds table; (3) PCA deviation report; (4) certification of legal review; and (5) MSC review comments.

Major Task KAA Initial Draft PCA

A draft PCA for restoration activities will be included in the Feasibility Report. The PCA is a legally binding agreement that sets forth the terms and conditions of the relationship between the Federal Government and the non-Federal sponsor for the construction, operation, and maintenance of projects approved through the feasibility process. This task will be performed by the Rock Island District's Planning, Programs, and Project Management Division and Real Estate Division.

This task will require 4 person days for Real Estate Division and 2 person days for Planning, Programs, and Project Management Division at a cost of $3,500. The cost for non-Federal sponsor participation is estimated at $3,500 (6 person days). A total of 12 person days will be required at a cost of $7,000.

Major Task KAB Federal/Non-Federal Allocation of Funds Table

An allocation of funds table will be prepared that includes the allocation of funds for each feature, programmed by FY, and separated by local sponsor and Federal Government. This table outlines cash flow for each partner for project purposes. See ER 1165-2-131, ER 11-2-240, and appropriate Project Management guidance letters. This task will be performed by the Rock Island District's Planning, Programs, and Project Management Division. This task will require 3 person days and cost $1,800.

Major Task KAC PCA-Deviation Report

The Deviation Report outlines, point-by-point, the deviations of the PCA from the standard "model" PCA. This report is intended to assist higher level authorities in their review of the PCA (see ER 1165-2-131). The Deviation Report will be an attachment to the letter forwarding the draft PCA package to HQUSACE. This task will be performed by the Rock Island District's Planning, Programs, and Project Management Division. This task will require 2 person days and cost $1,000.

Major Task KAD PCA-Certification of Legal Review

A brief memorandum for record will be prepared that certifies that the District Counsel has reviewed the initial draft PCA for legal sufficiency. This task will be performed by the Rock Island District's Office of Counsel and the Planning, Programs, and Project Management Division. This task will require 2 person days and cost $1,000.

Major Task KAE PCA-MSC Review Comments

An endorsement will be attached to the draft PCA that contains the MVD review comments on the PCA. This task will be performed by MVD and funded through other appropriations. This task will require 3 person days from the Rock Island District's Planning, Programs, and Project Management Division and cost $1,800.

The total cost of all activities to complete Sub-Product K - Project Cooperation Agreement is $12,600.

C. Reference to Statutes, Regulations, and Guidance

This section of the PSP lists statutes, regulations, Corps guidance, and other source materials that will be referred to during the feasibility study to guide completion of feasibility study tasks. The table below provides a summary of the acronyms and subject matter of various types of guidance. This table was extracted from the U.S. Army Corps of Engineers, Institute for Water Resources, IWR Report 96-R-21, *Planning Manual*, November 1996, which also is a useful reference document in providing practical suggestions for conducting water resource planning studies.

AR	Army Regulation
EC	Engineering Circular
EM	Engineering Manual
EP	Engineering Pamphlet
OM	Office Memorandum
PGL	Planning Guidance Letter
TL	Technical Letter
1105	Planning
1110	Engineering
1120	Construction - Operations
1130	Construction - Operations
1140	Construction - Operations
1165	Policy

The principal Engineering Regulation (ER) that guides the Corps of Engineers planning process is ER 1105-2-100, *Guidance for Conducting Civil Works Planning Studies*, 28 December 1990, U.S. Army Corps of Engineers. Appendix A of ER 1105-2-100 contains references to the applicable statutes, public laws, executive orders, and engineering regulations that guide preparation of Corps feasibility studies that had been promulgated as of the time of the ER (December 1990). Additional references that will be utilized to guide the completion of feasibility study investigations include the following:

CEAO-I Memorandum, dated 10 August 1988, subject: *HQUSACE Internal Review Guides - Compliance with Feasibility Study Guidance*

CECW-A Policy Guidance Letter No. 24, *Restoration of Fish and Wildlife Habitat Resources,* 7 March 1991, U.S. Army Corps of Engineers

CECW-A Policy Memorandum, *Implementation of New Technical and Policy Review Procedures,* 14 April 1995, U.S. Army Corps of Engineers

CECW-A Policy Memorandum No. 2, *Civil Works Decision Document Review - Review Compliance*, 6 April 1995, U.S. Army Corps of Engineers

CECW-A Policy Guidance Letter 59, *Recreation Development at Ecosystem Restoration Projects,* 11 June 1998, U.S. Army Corps of Engineers

CECW-A Policy Guidance Letter 61, *Application of Watershed Perspective to Corps of Engineers Civil Works Programs and Activities,* 27 January 1999, U.S. Army Corps of Engineers

CECW-PM, Planning Guidance Letter 97-1, *WRDA 96 Implementation*, 19 November 1996, U.S. Army Corps of Engineers

CECW-PE, Planning Guidance Letter 97-5, *Aquatic Ecosystem Restoration*, 18 February 1997, U.S. Army Corps of Engineers

CECW-PE, Planning Guidance Letter 97-10, *Shortening the Planning Process*, 26 March 1997, U.S. Army Corps of Engineers

CECW-PE, Memorandum, *Model Agreement for Feasibility Studies*, 21 March 1997, U.S. Army Corps of Engineers

EC 1105-2-208, *Preparation and Use of Project Study Plans*, 23 December 1994, U.S. Army Corps of Engineers

EM 1110-1-1000, *Photogrammetric Mapping*, 31 March 1993, U.S. Army Corps of Engineers

EM 1110-1-1003, *NAVSTAR Global Positioning System Surveying*, 1 August 1996, U.S. Army Corps of Engineers

EM 1110-1-1005, *Topographic Surveying*, 31 August 1994, U.S. Army Corps of Engineers

EM 1110-1-1802, *Geophysical Exploration for Engineering and Environmental Investigations*, 31 August 1995, U.S. Army Corps of Engineers

EM 1110-2-1415, *Hydrologic Frequency Analysis*, 05 March 1993, U.S. Army Corps of Engineers

EM 1110-2-1416, *River Hydraulics*, 15 October 1993, U.S. Army Corps of Engineers

EM 1110-2-1603, *Hydraulic Design of Spillways*, 16 January 1990, U.S. Army Corps of Engineers

EP 11-1-4, *Value Engineering: A Profitable Partnership*, 15 May 1995, U.S. Army Corps of Engineers

EP 1110-2-9, *Hydrologic Engineering Study Design*, 31 July 1994, U.S. Army Corps of Engineers

EP 1165-2-1, *Digest of Water Resource Policies and Authorities*, 30 July 1999 (updated annually), U.S. Army Corps of Engineers

ER 5-1-11, *Program and Project Management*, 27 February 1998, U.S. Army Corps of Engineers

ER 11-2-240, *Army Programs - Civil Works Activities - Construction*, 6 August 1996, U.S. Army Corps of Engineers

ER 200-2-2, *Procedures for Implementing NEPA*, (33 CFR 230), 4 March 1988, U.S. Army Corps of Engineers

ER 405-1-12 (Chapter 12), *Real Estate Handbook - Real Estate Roles and Responsibilities for Civil Works: Cost Shared and Full Federal Projects*, 20 November 1985, Change 33, 31 August 1999, U.S. Army Corps of Engineers

ER 1105-2-100, *Guidance for Conducting Civil Works Planning Studies*, 28 December 1990, U.S. Army Corps of Engineers

ER 1110-1-12, *E&D Quality Management*, 1 June 1993, U.S. Army Corps of Engineers

ER 1110-1-1300, *Cost Engineering Policy and General Requirements*, 26 March 1993, U.S. Army Corps of Engineers

ER 1110-2-1150, *Engineering and Design for Civil Works Projects*, 31 August 1999, U.S. Army Corps of Engineers

ER 1110-2-1302, *Civil Works Cost Engineering, ENG 1738-R, ENG 1739-R, ENG 1740-R, ENG 1741-R, ENG 1741A-R, ENG 1741B-R, ENG 1741C-R*, 31 March 1994, U.S. Army Corps of Engineers

ER 1110-2-1450, *Hydrologic Frequency Estimates*, 31 August 1994, U.S. Army Corps of Engineers

ER 1110-2-1460, *Hydrologic Engineering Management*, 7 July 1989, U.S. Army Corps of Engineers

ER 1110-2-1464, *Hydrologic Analysis of Watershed Runoff*, 30 June 1994, U.S. Army Corps of Engineers

ER 1110-2-8153, *Technical Project Sedimentation Investigations, 30 September 1995, U.S. Army Corps of Engineers*

ER 1110-2-8154, *Water Quality and Environmental Management for Corps Civil Works Projects (RCS: DAEN-CWH-4)*, 31 May 1995, U.S. Army Corps of Engineers

ER 1165-2-131, *Local Cooperation Agreements for New Start Construction Projects*, 15 April 1989, U.S. Army Corps of Engineers

ER 1165-2-132, *Hazardous, Toxic and Radioactive Waste (HTRW) Guidance for Civil Works Projects,* 26 June 1992, U.S. Army Corps of Engineers

ER 1165-2-501, *Water Resource Policies and Authorities, Civil Works Ecosystem Restoration Policy,* 30 September 1999, U.S. Army Corps of Engineers

Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies, 10 March 1983, U.S. Water Resources Council

IWR Report 96-R-21, *Planning Manual*, November 1996, U.S. Army Corps of Engineers, Institute for Water Resources

IWR Report 96-R-30, *Evaluation of Environmental Investments Procedures: Overview Manual,* December 1996, U.S. Army Corps of Engineers, Institute for Water Resources

IV. Work Breakdown Structure (WBS)

The Work Breakdown Structure (WBS) is a product-oriented hierarchy of the scope of work and is broken down into component products and sub-products. The WBS presented below follows the definition of major tasks, tasks, and subtasks defined in the Scope of Studies (SOS). The WBS is intended to summarize the entire feasibility work effort and is an outline of the specific tasks that are to be accomplished to produce the feasibility study products. The WBS follows a consistent set of accounting codes. The accounting codes of the WBS are intended to allow products, tasks, costs, and schedule to be tracked with easy reference throughout the feasibility phase.

The Civil Works Breakdown Structure (CWBS) used here is an accounting system for Corps of Engineers Civil Works projects. The Corps of Engineers Financial Management System (CEFMS) and the Project Management Information System (PROMIS) were designed to directly accept cost data for projects set up using the CWBS. Once these management systems go on-line, no funds can be spent without a study budget based on the CWBS. Other new Corps applications are expected to require the use of the CWBS as well. Therefore, in anticipation of the requirements of these systems, we have adopted the accounting system of the CWBS for the WBS. Table IV-1 lists the accounting codes of the CWBS for this Feasibility Report. The alphabetic code J corresponds to (and links) all work efforts related to preparing the Feasibility Report to the Feasibility Report product. The second level (e.g., JA - Engineering Appendix) corresponds to sub-products of the Feasibility Report. The third level (e.g., JCB - Gross Appraisal/Report) corresponds to major tasks/work elements. Tasks (4^{th} level), sub-tasks (5^{th} level), and sub-sub-tasks (6^{th} level) are also used, in some cases, to provide further detailed task descriptions.

TABLE IV-1

Civil Works Breakdown Structure
for the Illinois River Ecosystem Restoration, Illinois, Feasibility Study

J-----Feasibility Report

JA----Engineering Appendix

JAA---Surveying and Mapping

JAAA--Main Channel and Backwater Modification

JAAB--Survey of Specific Sites - Upland Sites

JAB---Hydrology and Hydraulics Studies/Report

JABA--Watershed Stability Analysis

JABAA - Tributary Sediment Analysis
JABAB - Tributary Hydrology
JABAC - Hydrologic Modeling of the Watershed
JABAD - Tributary Basin - Geomorphology Analysis

JABB--Main Channel and Backwater Modification - Modeling

JABC--Water Level Management Analysis

JABCA - System Water Level Management Analysis

JABCAA - Historic Fluctuations
JABCAB - Changes to Waterway
JABCAC - Water Level Model Development/Testing
JABCAD - Water Level Modeling Application
JABCAE - Water Level - MWRD & Lake Michigan Diversions

JABCB - Water Level Modeling - Drawdown

JABD--Floodplain Restoration and Protection - Modeling

JAC---Geotechnical Studies Report

JAD---Site Development Analysis/Report

JAE---Engineering and Design Analysis Report with Preliminary Drawings

JAEA--Preliminary Designs

JAEB--Detailed Designs

JAEC--Engineering Support to Plan Formulation

JB----Socioeconomic Studies/Report

JBA---Economic Analysis/Report

JBAA--Flood Damage Reduction Analysis

JBAB--Socioeconomic Analysis Report

JBB---Social Studies/Report

JBD---Ability to Pay Report

JBE---Financial Analysis Report

JBEA--Statement of Financial Capability

JBEB--Financing Plan

JBEC--Assessment of Financial Capability

JC----Real Estate Analysis/Documents

JCA---Real Estate Plan

JCB---Gross Appraisal/Report

JCC---Preliminary Real Estate Acquisition Maps

JCD---Physical Takings Analysis

JCE---Preliminary Attorney's Opinion of Compensability

JCF---Rights of Entry

JCG---All Other Real Estate Analyses/Documents

JD----Environmental Studies/Reports

JDA---Documentation of Scoping Meetings

JDC---Programmatic Environmental Impact Statement

JDD---Coordination Documents with Other Agencies

JDE---Environmental Resource Inventory Reports

JDEA--Restoration Needs Assessment (RNA)

JDEB--Biological/Field Sampling Plan

JDEC--Waterfowl, Fish, and Macroinvertebrate Sampling

JDED--Identify Significance of Study Area

JDF---Mitigation Analysis Report

JDG---Endangered Species Analysis

JDH---Section 404(b)(1) Analysis Report

JDI---401 State Water Quality Certification

JDJ---Record of Decision

JDL---Statement of Findings (SOF)

JDN---Other Environmental Documentation

JDNA--Water Quality and Sediment Sampling Report

JDNAA - Review of Existing Water Quality Data
JDNAB - Sediment Sampling Contaminant Analysis

JDNB--Quantification of Ecosystem Restoration Outputs

JDNBA - Habitat Based Assessment of Project Area
JDNBB - Establish Baseline Level of Ecological Function Under Existing and Improved Conditions

JE----Fish and Wildlife Coordination Act Report

JEA---District Coordination

JEB---Preparation of Coordination Act Report

JF----HTRW Studies/Report

JG----Cultural Resource Report

JGA---Site Survey Field Report

JGB---Data Collection and Analysis Report

JGC---Mitigation Plan Report

JGD---Memorandum of Agreement

JGF---All Other Cultural Resources Studies/Reports

JH----Cost Estimates

JHA---Study Cost Estimate Updates

JHB---PED Cost Estimate

JHC---Project Cost Estimate

JHCA--Preliminary Cost Estimates

JHCB--Feasibility Level Cost Estimates

JHD---OMRR&R Cost Estimate

JHE---Baseline Fully Funded Cost Estimate

JHF---All Other Cost Estimates

JI----Public Involvement Documents

JIA---Public Meetings

JIAA--Study Initiation Public Open House

JIAB--Study Mid-Point Public Open House

JIAC--Study Conclusion Public Meeting

JIB---Minutes of Public Meetings

JIC---Public Comments Report

JID---Newsletters

JIDA--Identify Affected Publics–Build/Maintain Mailing List

JIDB--Prepare Newsletters

JIE---All Other Public Involvement Documents

JIEA--Public and Agency Coordination Appendix

JIEB--Provide Assistance to Project Team

JIEC--Attend Project Team Meetings

JIED--Prepare Logistics for Feasibility Phase Issue Resolution Conference (FRC)

JIEE--Coordinate with District Public Affairs Office

JIEF--Support to Plan Formulation

JJ----Plan Formulation and Evaluation Report

JJA---Project Management Coordination

JJAA--Study Coordination

JJAB--In Progress Review (IPR) Briefing and Report

JJB---Plan Formulation Support Technology

JJBA--Study Formulation Site

JJBB--GIS - Data Gathering

JJBC--GIS - Analysis and Synthesis

JJBD--GIS - Map and Summary Information

JJC---Plan Formulation

JJCA--Identify Problems and Opportunities

JJCB--Establish Without-Project Conditions

JJCC--Formulation of Alternatives and Application to Restoration Needs

JJCD--Development of Restoration Prioritization and Implementation Framework

JJCE--Formulation of Specific Site Restoration Projects

JJCF--Cost Effectiveness and Incremental Cost Analysis

JJCG--Plan Formulation Report

JJD---Alternative Formulation Briefing (AFB)

JJE---AFB Guidance Memorandum & MVD Approval of Formulation Material

JJF---Quality Assurance/Quality Control

JK----Draft Report Documentation

JKA---Feasibility Review Conference (FRC) Documents

JKB---Public Review Comments

JKC---Project Guidance Memorandum (PGM)

JKD---All Other Draft Feasibility Documents

JL----Final Report Documentation

JLA---Division Commander's Notice

JLB---All Other Final Feasibility Report Documents

JM----Washington Level Report Approval

JMA---Policy Review Approval

JMB---Chief's Report

JMC---OMB Report Approval

JMD---ASA(CW) Report Approval

JN----All Other Feasibility Studies/Investigations

JO----Damages Assessed Architect-Engineer (A-E) Contractors

JP----Management Documents

JPA---A-E Contract Documents

JPB---Coordination Documents

JPC---Project Funds Control Documents

JPD---Trip Reports

JPE---Minutes of Technical Review Conference (TRC)

JPF---All Other Management Documents

JPFA--Executive Committee & PRB Coordination

JPFB--Budget Preparation

JPFC--PMP Preparation

JPFD--Cost Estimates - Prep/Update/Coordinate

JPFE--Budget Briefings

K-----Project Cooperation Agreement (PCA)

KA----Initial Draft PCA Package

KAA---Initial Draft PCA

KAB---Federal/Non-Federal Allocation of Funds Table

KAC---PCA-Deviation Report

KAD---PCA-Certification of Legal Review

KAE---PCA-MSC Review Comments

V. Organizational Breakdown Structure (OBS)

The Organizational Breakdown Structure (OBS) identifies the organizations that have lead and support responsibilities for completing each feasibility study task. In addition to identifying task responsibilities, the OBS includes mechanisms for assuring proper coordination among the Federal and non-Federal project team members involved in preparing the feasibility study.

A. Organizational Work Responsibilities

The OBS describes the responsibility of each organization in providing input to and/or completing tasks identified in the Scope of Studies and WBS. The following paragraphs identify the management and technical responsibilities for the study. Three levels of management responsibility will be used to guide development of the study: the Executive Committee, the PRBs, and the project management team. Responsibilities for performing the technical feasibility study investigations are identified following the description of the management structure.

A.1 Executive Committee. As indicated in the Feasibility Cost-Sharing Agreement (FCSA), the overall project management is the responsibility of the Rock Island District Commander; the Deputy for Programs and Project Management; and designated representatives of the Illinois Department of Natural Resources (non-Federal sponsor). The Executive Committee will meet as needed throughout the study to review study progress, finances, and findings as developed and reported by the project team. The Chief of the Project Management Branch, Rock Island District, may act as alternate for the Deputy for Programs and Project Management while also serving as liaison to the project team. Those representing the Illinois Department of Natural Resources will be equal partners with the Corps representatives on the Executive Committee. The District Commander and his counterpart from the Illinois Department of Natural Resources will co-chair the committee. The Executive Committee will: (1) maintain a working knowledge of the feasibility study; (2) assist in resolving emerging policy issues; (3) ensure that evolving study results and policies are consistent and coordinated; (4) direct the project management team; and (5) evaluate decisions made by the project management team.

The Executive Committee will participate in Issue Resolution Conferences (IRCs). The committee is also responsible for resolving any disputes that may arise during the study. The committee will agree on the solutions and study direction, which may include study termination. At least one IRC will be held prior to the public distribution of the draft feasibility report to ensure that all issues are resolved before the final report is submitted to higher authority. Additional IRCs will be held, as required, throughout the study to resolve any problems that may arise.

As detailed in Article III of the FCSA, the Executive Committee must approve any significant amendments to the FCSA. Significant changes are defined as follows:

- Any modification to the FCSA that increases the total study costs by more than 15 percent, relative to the current study cost estimate.

- Any modification in the estimated cost of a study work item or any obligation for a study work item, which changes the total cost of that work item by more than 10 percent of the work or a minimum of $10,000, accounting should be made by the individual project manager of actual costs and adjustments to effectively manage the study budget;

- Any extension of the completion schedule for a study work task of more than thirty (30) days beyond the established late finish date from the study schedule; or

- Any reassignment of work item between the sponsor and the Federal Government.

The Executive Committee is also responsible for any decisions on whether to suspend or terminate studies under Article X of the FCSA. The Committee will also resolve any disputes that are not resolved by the project team and will appoint appropriate representatives to serve on the project team.

A.2 Project Review Boards (PRBs). The PRBs have been established at three levels within the Corps of Engineers to evaluate the status and progress on all studies, projects, and programs. One PRB includes HQUSACE. The HQUSACE PRB is chaired by the Director of Civil Works or designee and includes the chiefs of the elements whose functions are integral to the USACE role in civil works projects. The HQUSACE PRB will review the study only if it determines that it needs intensive management at that level or if recommended by the MVD PRB. The HQUSACE PRB will facilitate resolution of major study issues, concerns, and problems through Corps functional channels and make recommendations to the Director of Civil Works, MVD, and the non-Federal sponsor as part of the intensive management. Upon receipt of a Schedule and Cost Change Request (SACCR), the HQUSACE PRB will approve changes in major milestones and significant cost increases in accordance with ER 5-1-11. The HQUSACE PRB will meet bimonthly.

The second PRB will be chaired by the MVD Commander or designee and include the chiefs of the elements whose functions are integral to the role of the Division in civil works projects. The MVD PRB will review monthly the Project Executive Summary (PES) for compliance with the PSP and PMP and provide comments to the District. The MVD PRB will facilitate resolution or elevate to the Division Commander or higher authority major issues raised during the study, monitor study contingencies and cost changes against the approved study cost estimate, and take appropriate action on SACCRs in accordance with ER 5-1-11.

A third PRB will be held by the Rock Island District and chaired by the District Commander or designee. It will include the chiefs of the elements whose functions are integral to the role of the District in civil works projects. The District PRB will review the project monthly for compliance with the PSP and PMP and provide comments to the Division and the project manager. The District PRB will facilitate resolution or elevate to MVD major issues raised during the study, monitor study contingencies and costs of changes against the approved study cost estimate, and take appropriate action on SACCRs, in accordance with ER 5-1-11. The District PRB also will approve the PMP and any significant changes identified by the project management team and recommended by the project manager in accordance with ER 5-1-11. The non-Federal sponsor may attend the District PRB meetings at his/her discretion.

A.3 Project Management Team. The project management team will include representatives from the Corps of Engineers, the Illinois Department of Natural Resources, and other agencies, as appropriate. This team will ensure appropriate scopes of services for the technical studies, guide their accomplishment, and participate in plan formulation and selection of potential alternatives. The team will be directly involved in establishing mutual roles for the project team members and in focusing feasibility investigations on the critical issues. Corps of Engineers representatives will include the project manager and a project engineer from Engineering Division. The non-Federal sponsor also will appoint a representative to the project management team. The team will recommend to the Executive Committee the tasks to be conducted and the extent of planning and evaluation to be carried out in the feasibility phase. The team also will report to the Executive Committee and PRB on the results of studies and recommend alternative courses of action for project implementation. Project management team meetings will typically be held at 4- to 6-week intervals, but may be more frequent at critical decision points.

A.4 Project Team Participants. The project team is responsible for accomplishment of the study in accordance with the FCSA, PSP, and appropriate Federal and State guidance and regulations. The project team participants will meet regularly to coordinate on study progress, interim findings, financial status, and all matters related to conduct and completion of the study.

The project team is composed of representatives from the Rock Island District's Planning, Programs, and Project Management Division, Engineering Division, and Real Estate Division. Representatives of the non-Federal sponsor are also included as part of the project team.

The project team has the responsibility for study formation, technical project management, and development of the feasibility report. A Project Manager (PM) will be assigned to provide overall leadership. The development of a timely, quality product within the established task budget is the responsibility of the PM. In addition, the individual elements are responsible for scope of work preparation, contract negotiation, and performance of any work to be completed by consultants or other Federal agencies.

A.5 Planning, Programs, and Project Management Division (PM). The Planning, Programs, and Project Management Division (PM) is the primary representative of the USACE Commander and serves as point of contact with the non-Federal sponsor. The project manager is responsible for reporting to Rock Island District's PRB and for preparing required Life Cycle Project Management (LCPM) reports. The PM responsibilities include developing and monitoring project schedules and finances, processing schedule and cost change requests, managing contingencies, reviewing budget documents, coordinating the FCSA and the PCA, and identifying problems and issues.

A representative from the Project Management Branch is the Planning, Programs, and Project Management Division project manager. Responsible activities include leading plan formulation, monitoring the expenditure of funds by each division, monitoring the progress of technical work, and developing and preparing the feasibility report. The Economic and Social Analysis Branch will be responsible for developing economic data and demographic information and evaluating economic impacts. The Environmental Analysis Branch will be responsible for developing environmental and cultural data, developing incremental analyses for justification of environmental projects, assessing environmental impacts, preparing mitigation plans, and ensuring environmental compliance. The Project Management Branch will coordinate the GIS efforts required during the study.

A.6 Engineering Division (ED). The Engineering Division project engineer will be responsible for coordinating the Engineering Division contribution to the feasibility study. This includes coordinating with the project manager regarding the status of engineering work efforts. The Cost Engineering Branch will be responsible for developing cost estimates for initial construction and operation and maintenance of alternative plans and the selected plan. The Hydrology and Hydraulics Branch will be responsible for conducting hydrologic and hydraulic design studies. The Design Branch will be responsible for developing designs and drawings, structural investigations, and surveying and mapping activities. The Survey Branch will perform ground and bathymetric surveys, provide technical support to the project team participants, and coordinate activities with GIS needs. The Geotechnical Engineering Branch will perform drill borings, soils testing, and geotechnical analyses (slope stability, bearing capacity, settlement, and borrow material analyses) in support of the study.

A.7 Real Estate Division (RE). The Real Estate Division will be responsible for performing all required real estate activities for the project. Real estate activities will include determining land ownership, developing the real estate gross appraisal, and preparing the real estate plan that will include a baseline cost estimate for real estate, development of a detailed schedule of acquisition milestones, and a general description of the area and total acreage to be acquired, with fee and easement breakdown. The Appraisal Branch will prepare gross appraisals. The Acquisition Branch will obtain rights-of-entry, prepare preliminary real estate acquisition maps, and prepare the real estate appendix to the feasibility report. The Real Estate Division will also prepare the physical takings analysis and the preliminary attorney's opinion of compensability.

A.8 Support Offices/Organizations. Numerous internal and external agencies/organizations will be consulted throughout the project for their input. Some agencies will participate in all projects and others will only participate in the plan formulation process for specific projects. Those organizations that control property have shown a special interest in the study, or have a certain area of expertise for product development will be included throughout the study period.

A.9 Non-Federal Sponsor. The sponsor will be involved in all aspects of the feasibility study to ensure agreement with the findings of the study. The Corps will fully coordinate with the sponsor for their experience and expertise. They will attend progress meetings and public workshops, participate in the plan formulation process, provide scientific and technical input to field studies, assist in the development of recommended plans, perform quality assurance, and review the reports.

A.10 Other Participants. Numerous agencies and organizations will be consulted throughout the project. Some agencies will participate in all projects and others will only participate in the plan formulation process for specific projects. Those organizations that control property, have shown a special interest in the study, or have a certain area of expertise required for the study include, but are not limited to, the following agencies: the USFWS, the U.S. Department of Agriculture, the U.S. EPA, the U.S. Geological Survey, state and local agencies, and non-governmental organizations.

B. Description of Coordination Mechanisms

The Illinois River Ecosystem Restoration, Illinois, Feasibility Study will require input from many different work elements, the sponsor, and other external organizations, such as consultants, universities, and other government agencies. Proper coordination among these study participants is essential to maintain the project schedule, to avoid duplication of efforts, to detect problems in a

timely manner, and to maintain agreement and cooperation on the direction of the study. Therefore, formal coordination mechanisms are described in the PSP.

B.1 Internal Coordination Mechanisms. Internal coordination mechanisms will be used to ensure that effective internal command, control, and coordination are maintained during the feasibility study. The primary internal coordination mechanisms will be the monthly PRB meetings, monthly meetings of the Project Management Team, and IRCs scheduled at critical phases of the study. An earned value analysis will also be accomplished on a monthly basis. The purpose of the earned value analysis is to assess actual study progress against scheduled progress with regard to both cost and schedule. Performing this analysis also will provide an early warning mechanism to identify and avoid potential cost and schedule variances.

A work plan also will be developed on an annual basis that reflects anticipated funding levels and work efforts based on the PSP. The District PRB will review monthly the PES report for compliance with the PSP and provide comments to the MVD and the project manager. The plan will include reports on study progress to date, a schedule for the efforts planned for the coming year, specific work tasks required to complete feasibility study investigations, estimates of costs from each discipline, and other pertinent information. The Executive Committee will approve the annual work plans.

B.2 External Coordination Mechanisms. Coordination outside the Corps of Engineers and non-Federal sponsor will be necessary to ensure the success of the feasibility study. External agency counterparts for the environmental work effort include: U.S. EPA, SHPO, State of Illinois, NRCS, USFWS, State and local legislators, and county and city officials.

B.2.1 Public Meetings/Workshops. Public meetings and workshops will be scheduled throughout the study period to gather input, report on study progress, or to report study findings. The Planning, Programs, and Project Management Division project manager and non-Federal sponsor's representative will arrange for, coordinate, and report on public meetings/workshops.

B.2.2 Project Briefings and Fact Sheets. Project briefings will be provided and fact sheets prepared throughout the project period for congressional representatives, State and local officials, and others, as appropriate.

B.2.3 Newsletters. The Planning, Programs, and Project Management Division project manager and public involvement coordinator will develop newsletters throughout the feasibility study with information provided by each technical study element. Newsletters will be sent to individuals and groups on the project mailing list, which will be updated throughout the course of the investigation.

B.2.4 Internet. Major study documents will be located on the Rock Island District, U.S. Army Corps of Engineers home page, address: http://www.mvr.usace.army.mil.

C. Development of Resource Codes

A set of Resource Codes has been developed for accounting and administrative purposes. The resource codes presented in Table V-1 include abbreviations of the technical elements responsible for conducting portions of the feasibility study. These abbreviations are also used in the Responsibility Assignment Matrix (Table V-2).

TABLE V-1

Resource Codes

Resource Code	Technical Element/Resource Code Description
PM	Planning, Programs & Project Management Division
PM-M	Project Management Branch
PM-P	Programs Management Branch
PM-A	Economic and Social Analysis Branch
PM-R	Environmental Analysis Branch
ED	Engineering Division
ED-C	Cost Engineering Branch
ED-D	Design Branch
ED-DE	Specifications Section
ED-DN	Environmental Engineering Section
ED-DM	Project Management Section
ED-H	Hydrology & Hydraulics Branch
ED-HH	Hydrologic Engineering Section
ED-G	Geotechnical Branch
ED-S	Survey Branch
HQUSACE	Headquarters, U.S. Army Corps of Engineers
MVD	Mississippi Valley Division, U.S. Army Corps of Engineers
OC	Office of Counsel
OD	Operations Division
RE	Real Estate Division
RE-A	Acquisition Branch
RE-E	Appraisal Branch

D. Responsibility Assignment Matrix (RAM)

The Responsibility Assignment Matrix (RAM) is a tabular representation of the organizational responsibilities for performing the work efforts defined in the Work Breakdown. It defines the intersection of the Organizational Breakdown Structure (OBS) and the Work Breakdown Structure (WBS). Table V-2 presents the RAM for the Illinois River Ecosystem Restoration, Illinois, Feasibility Study. WBS codes (1st through 5th levels) are represented vertically in the first column of the matrix and adopt the accounting system of the CWBS. The second column includes an abbreviated description of each activity. The Resource Codes of the OBS are represented horizontally in the first row of the matrix. The individual cells of the matrix identify the responsible organization for each WBS activity. Lead organizations are identified with a check "✔" mark. Contributing organizations are identified with an asterisk "✹".

TABLE V-2

Responsibility Assignment Matrix (RAM)

WBS Code	Activity	PM	PM-M	PM-A	PM-R	ED	ED-C	ED-D	ED-DE	ED-DN	ED-DM	ED-H	ED-HH	ED-G	ED-S	HQUSACE/MVD	OC	OD	RE	RE-A	RE-E	SPONSOR
J	FEASIBILITY REPORT		✔	✹	✹		✹			✹	✹		✹	✹	✹					✹	✹	
JA	ENGINEERING APPENDIX									✔			✹	✹	✹							
JAA	SURVEYING & MAPPING									✹					✹							
JAAA	MAIN CHANNEL AND BACKWATER MODIFICATION									✹					✹							
JAAB	SURVEY OF SPECIFIC SITES--UPLAND SITES									✹					✹							
JAB	H & H STUDIES/REPORT									✹			✔									
JABA	WATERSHED STABILITY ANALYSIS									✹			✔									
JABAA	TRIBUTARY SEDIMENT ANALYSIS									✹			✔									
JABAB	TRIBUTARY HYDROLOGY									✹			✔									
JABAC	HYDROLOGIC MODELING OF THE WATERSHED									✹			✔									
JABAD	TRIBUTARY BASIN - GEOMORPHOLOGY ANALYSIS									✹			✔									
JABB	MAIN CHANNEL & BACKWATER MODIFICATION - MODELING									✹			✔									
JABC	WATER LEVEL MANAGEMENT ANALYSIS									✹			✔									
JABCA	SYSTEM WATER LEVEL MANAGEMENT ANALYSIS									✹			✔									
JABCB	WATER LEVEL MODELING - DRAWDOWN									✹			✔									
JABD	FLOODPLAIN RESTORATION & PROTECTION - MODELING									✹			✔									✹
JAC	GEOTECHNICAL STUDIES REPORT		✹		✹					✹				✔								
JAD	SITE DEVELOPMENT ANALYSIS/ REPORT									✔												
JAE	ENGRG & DESIGN ANALYSIS RPT W/PRELIMINARY DRAWINGS									✔												
JAEA	PRELIMINARY DESIGNS		✹		✹		✹			✔			✹	✹								
JAEB	DETAILED DESIGNS		✹		✹					✔			✹	✹								
JAEC	ENGINEERING SUPPORT TO PLAN FORMULATION		✹							✔			✹	✹	✹							

LEGEND:
✔ = Lead Organization
✹ = Contributing Organization

WBS Code	Activity	PM	PM-M	PM-A	PM-R	ED	ED-C	ED-D	ED-DE	ED-DN	ED-DM	ED-H	ED-HH	ED-G	ED-S	HQUSACE/MVD	OC	OD	RE	RE-A	RE-E	SPONSOR
JB	SOCIOECONOMIC STUDIES/REPORT																					
JBA	ECONOMIC ANALYSIS/REPORT			✔																		
JBAA	FLOOD DAMAGE REDUCTION ANALYSIS		✹	✔	✹		✹				✹											
JBAB	SOCIOECONOMIC ANALYSIS REPORT			✔									✹									
JBB	SOCIAL STUDIES/REPORT			✔																		
JBD	ABILITY TO PAY REPORT			✔																		
JBE	FINANCIAL ANALYSIS REPORT			✔																		
JBEA	STATEMENT OF FINANCIAL CAPABILITY			✔																		
JBEB	FINANCING PLAN			✔																		
JBEC	ASSESSMENT OF FINANCIAL CAPABILITY			✔																		
JC	REAL ESTATE ANALYSIS/DOCS																					
JCA	REAL ESTATE PLAN										✹									✔		
JCB	GROSS APPRAISAL/REPORT																				✔	
JCC	PRELIM RE ACQUISITION MAPS										✹				✹							
JCD	PHYSICAL TAKINGS ANALYSIS																			✔		
JCE	PRELIM ATTORNEY'S OPINION OF COMPENSABILITY																			✔		
JCF	RIGHTS OF ENTRY										✹				✹					✔	✹	
JCG	ALL OTHER RE ANALYSES/DOCS																			✔	✹	
JD	ENVIRON STUDIES/REPORTS																					
JDA	DOCUM OF SCOPING MTGS				✔																	
JDC	PROGRAMMATIC EIS				✔												✹					
JDD	COORDINATION DOCUMENTS W/OTHER AGENCIES				✔																	
JDE	ENVIRONMENTAL RESOURCE INVENTORY REPORT				✔																	

LEGEND:
✔ = Lead Organization
✹ = Contributing Organization

WBS Code	Activity	PM	PM-M	PM-A	PM-R	ED	ED-C	ED-D	ED-DE	ED-DN	ED-DM	ED-H	ED-HH	ED-G	ED-S	HQUSACE/MVD	OC	OD	RE	RE-A	RE-E	SPONSOR
JDEA	RESTORATION NEEDS ASSESSMENT		✹		✔					✹			✹									✹
JDEB	BIOLOGICAL/FIELD SAMPLING PLAN				✔																	
JDEC	WATERFOWL, FISH & MACRO-INVERTEBRATE SAMPLING				✔																	
JDED	IDENTIFY SIGNIFICANCE OF STUDY AREA				✔																	
JDF	MITIGATION ANALYSIS REPORT				✔																	
JDG	ENDANGERED SPECIES ANALYSIS				✔																	
JDH	SECTION 404(b)(1) ANALYSIS RPT				✔							✹					✹					
JDI	401 STATE WATER QUAL CERT				✔							✹										
JDJ	RECORD OF DECISION				✔																	
JDL	STATEMENT OF FINDINGS				✔																	
JDN	OTHER ENVIRONMENTAL DOCUMENTATION				✔																	
JDNA	WATER QUALITY & SEDIMENT SAMPLING REPORT				✔																	
JDNAA	REVIEW OF EXISTING WATER QUALITY DATA				✔																	
JDNAB	SEDIMENT SAMPLING CONTAMINANT ANALYSIS				✔																	
JDNB	QUANTIFICATION OF ECOSYSTEM RESTORATION OUTPUTS				✔																	
JDNBA	HABITAT BASED ASSESSMENT OF PROJECT AREA				✔																	
JDNBB	ESTABLISH BASELINE LEVEL OF ECOLOGICAL FUNCTION UNDER EXISTING & IMPROVED CONDITIONS				✔																	
JE	FWCA REPORT																					
JEA	DISTRICT COORDINATION				✔																	
JEB	PREPARATION OF CAR				✔																	
JF	HTRW STUDIES/REPORT									✔										✔		
JG	CULTURAL RESOURCE REPORT																					
JGA	SITE SURVEY FIELD REPORT				✔																	

LEGEND:
✔ = Lead Organization
✹ = Contributing Organization

WBS Code	Activity	PM	PM-M	PM-A	PM-R	ED	ED-C	ED-D	ED-DE	ED-DN	ED-DM	ED-H	ED-HH	ED-G	ED-S	HQUSACE/MVD	OC	OD	RE	RE-A	RE-E	SPONSOR
JGB	DATA COLLECTION & ANALYSIS REPORT				✔																	
JGC	MITIGATION PLAN REPORT				✔																	
JGD	MEMORANDUM OF AGREEMENT				✔																	
JH	COST ESTIMATES																					
JHA	STUDY COST ESTIMATE UPDATES						✔				✹											
JHB	PED COST ESTIMATE				✹		✔				✹									✹		
JHC	PROJECT COST ESTIMATE				✹		✔				✹									✹		
JHCA	PRELIMINARY COST ESTIMATES						✔				✹											
JHCB	FEASIBILITY LEVEL COST ESTIMATES						✔				✹									✹		
JHD	OMRR&R COST ESTIMATE						✔				✹											
JHE	BASELINE FFCE						✔															
JHF	ALL OTHER COST ESTIMATES						✔															
JI	PUBLIC INVOLVEMENT DOCUMENTS																					
JIA	PUBLIC MEETINGS			✔																		
JIAA	STUDY INITIATION PUBLIC OPEN HOUSE		✹	✔							✹											
JIAB	STUDY MID-POINT PUBLIC OPEN HOUSE		✹	✔							✹											
JIAC	STUDY CONCLUSION PUBLIC MEETING		✹	✔																		
JIB	MINUTES OF PUBLIC MEETINGS			✔																		
JIC	PUBLIC COMMENTS REPORT			✔																		
JID	NEWSLETTERS		✹	✔																		
JIDA	IDENTIFY AFFECTED PUBLICS—BUILD/MAINTAIN MAILING LIST			✔																		
JIDB	PREPARE NEWSLETTERS			✹																		
JIE	ALL OTHER PUBLIC INVOLVEMENT DOCUMENTS			✔																		

LEGEND:
✔ = Lead Organization
✹ = Contributing Organization

WBS Code	Activity	PM	PM-M	PM-A	PM-R	ED	ED-C	ED-D	ED-DE	ED-DN	ED-DM	ED-H	ED-HH	ED-G	ED-S	HQUSACE/MVD	OC	OD	RE	RE-A	RE-E	SPONSOR
JIEA	PUBLIC & AGENCY COORDINATION APPENDIX			✔																		
JIEB	PROVIDE ASSISTANCE TO PROJECT TEAM			✔																		
JIEC	ATTEND PROJECT TEAM MEETINGS			✔																		
JIED	PREPARE LOGISTICS FOR FRC			✔																		
JIEE	COOR W/DISTRICT PA OFFICE			✔																		
JIEF	SUPPORT TO PLAN FORMULATION			✔																		
JJ	PLAN FORM & EVALUATION RPT																					
JJA	PROJECT MANAGEMENT COORDINATION		✔	✹	✹					✹	✹		✹	✹	✹					✹		
JJAA	STUDY COORDINATION		✔																			
JJAB	IN PROGRESS REVIEW BRIEFING & REPORT		✔																			
JJB	PLAN FORMULATION SUPPORT TECHNOLOGY		✔																			
JJBA	STUDY FORMULATION SITE		✔																			
JJBB	GIS - DATA GATHERING		✔																			✹
JJBC	GIS - ANALYSIS & SYNTHESIS		✔																			
JJBD	GIS - MAP & SUMMARY INFORMATION		✔																			
JJC	PLAN FORMULATION		✔	✹	✹					✹	✹		✹	✹						✹		
JJCA	IDENTIFY PROBLEMS & OPPORTUNITIES		✔																			
JJCB	ESTABLISH WITHOUT-PROJECT CONDITIONS		✔	✹						✹			✹									
JJCC	FORMULATION OF ALTERNATIVES & APPLICATION TO REST. NEEDS		✔	✹						✹			✹									
JJCD	DEVELOPMENT OF RESTORATION PRIORITIZATION & IMPLEMENTA-ITON FRAMEWORK		✔	✹	✹					✹			✹									
JJCE	FORMULATION OF SPECIFIC SITE RESTORATION PROJECTS		✔	✹						✹			✹									
JJCF	COST EFFECTIVENESS AND INCREMENTAL COST ANALYSIS		✔	✹	✹		✹				✹											
JJCG	PLAN FORMULATION REPORT		✔																			

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WBS Code	Activity	PM	PM-M	PM-A	PM-R	ED	ED-C	ED-D	ED-DE	ED-DN	ED-DM	ED-H	ED-HH	ED-G	ED-S	HQUSACE/MVD	OC	OD	RE	RE-A	RE-E	SPONSOR
JJD	ALTERNATIVE FORMULATION BRIEFING		✔	✹	✹					✹	✹		✹	✹	✹					✹		
JJE	AFB GUIDANCE MEMORANDUM & MVD APPROVAL OF FORMULATION MATERIAL		✔																			
JJF	QUALITY ASSURANCE/QUALITY CONTROL		✔																			
JK	DRAFT REPORT DOCUMENTATION																					
JKA	FRC DOCUMENTS		✔																			
JKB	PUBLIC REVIEW COMMENTS		✔																			
JKC	PROJECT GUIDANCE MEMORANDUM		✔																			
JKD	ALL OTHER DRAFT FEASIBILITY DOCUMENTS															✔						
JL	FINAL REPORT DOCUMENTATION																					
JLA	DIVISION COMMANDER'S NOTICE		✔																			
JLB	ALL OTHER FINAL FEASIBILITY REPORT DOCUMENTS		✔																			
JM	WASHINGTON LEVEL REPORT APPROVAL																					
JMA	POLICY REVIEW APPROVAL		✹													✔						
JMB	CHIEF'S REPORT		✹													✔						
JMC	OMB REPORT APPROVAL		✹													✔						
JMD	ASA(CW) REPORT APPROVAL		✹													✔						
JN	ALL OTHER FEAS STUDIES/ INVESTIGATIONS																					
JO	DAMAGES ASSESSED A-E CONT																					
JP	MANAGEMENT DOCUMENTS																					
JPA	A-E CONTRACT DOCUMENTS		✔																			
JPB	COORDINATION DOCUMENTS		✔																			
JPC	PROJECT FUNDS CONTROL DOCUMENTS	✹	✔																			
JPD	TRIP REPORTS		✔																			

LEGEND:
✔ = Lead Organization
✹ = Contributing Organization

WBS Code	Activity	PM	PM-M	PM-A	PM-R	ED	ED-C	ED-D	ED-DE	ED-DN	ED-DM	ED-H	ED-HH	ED-G	ED-S	HQUSACE/MVD	OC	OD	RE	RE-A	RE-E	SPONSOR
JPE	MINUTES OF TRC		✔																			
JPF	ALL OTHER MANAGEMENT DOCUMENTS		✔																			
JPFA	EXECUTIVE COMMITTEE & PRB COORDINATION	✹	✔																			
JPFB	BUDGET PREPARATION		✔																			
JPFC	PMP PREPARATION		✔																			
JPFD	COST ESTIMATES – PREP/UPDATE/COORDINATE	✹	✔																			
JPFE	BUDGET BRIEFINGS		✔																			
K	PROJECT COOP AGREEMENT																					
KA	INITIAL DRAFT PCA PACKAGE																					
KAA	INITIAL DRAFT PCA		✹																✔			
KAB	FED/NON-FED ALLOCATION OF FUNDS TABLE		✔																			
KAC	PCA-DEVIATION REPORT		✔																			
KAD	PCA-CERT OF LEGAL REVIEW		✹														✔					
KAE	PCA-MSC REVIEW COMMENTS		✹													✔						

LEGEND:
✔ = Lead Organization
✹ = Contributing Organization

VI. Feasibility Study Schedule

This section of the PSP defines the schedule for completion of major milestones and tasks for use in monitoring the progress of the feasibility study. The feasibility study initiation date is tentatively scheduled for June 2000. The feasibility phase can begin only after approval and certification of the reconnaissance report, negotiation and execution of the FCSA, and receipt of both Federal and non-Federal funds.

The milestone schedule shown below assumes Federal funding of $277,000 for the feasibility study in FY2000 and assumes that subsequent years are funded as required to effectively accomplish the study. Milestone dates will be adjusted proportionately if study initiation occurs later than June 2000. In addition, a Gantt chart is provided on the next page to show these same milestones visually.

Milestone	Date	Description
M1	September 2000	Initiate Feasibility Study
M2	October 2000	Initiate System Evaluations (RNA Phase 1, Water Level Management, Floodplain Restoration, etc.)
M3	Fall 2000	Public (Scoping) Workshop
M4	Summer 2001	Identify 2 to 3 Potential Site-Specific Restoration Sites
M5	Summer 2001	In-Progress Review Briefing
M6	December 2001	Interim Report on Illinois River Restoration Needs
M7	February 2003	Complete Detailed Designs for Site-Specific Projects
M8	March 2003	Alternative Formulation Briefing
M9	September 2003	Public Review of Draft Report and EIS
M10	November 2003	District Finalize Feasibility Report and EIS
M11	December 2003	Division Engineer's Public Notice

VII. Baseline Feasibility Study Cost Estimate

Table VII-1 presents the feasibility study cost estimate.

Table VII-1
Illinois River Ecosystem Restoration Feasibility Study
Cost Estimate

Activity Code	Task Description	Estimated Costs: Federal	In-Kind	Total Cost	Subproduct Total
J-----Feasibility Report					
JA----Engineering Appendix					$1,525,000
JAA---Surveying and Mapping					
	JAAA--Main Channel and Backwater Modification			$60,000	
	JAAB--Survey of Specific Sites - Upland Sites			$30,000	
JAB---Hydrology and Hydraulics Studies/Report				$50,000	
	JABA--Watershed Stability Analysis				
	JABAA--Tributary Sediment Analysis			$100,000	
	JABAB--Tributary Hydrology			$50,000	
	JABAC--Hydrologic Modeling of the Watershed			$175,000	
	JABAD--Tributary Basin - Geomorphology Analysis			$25,000	
	JABB--Main Channel and Backwater Modification - Modeling			$180,000	
	JABC--Water Level Management Analysis				
	JABCA --System Water Level Management Analysis				
	JABCAA -- Historic Fluctuations			$35,000	
	JABCAB -- Changes to Waterway			$20,000	
	JABCAC -- Water Level Model Development/Testing			$100,000	
	JABCAD -- Water Level Modeling Application			$20,000	
	JABCAE -- Water Level - MWRD & Lake Michigan Diversions			$60,000	
	JABCB -- Water Level Modeling - Drawdown			$100,000	
	JABD--Floodplain Restoration and Protection - Modeling	$150,000	$30,000	$180,000	
JAC---Geotechnical Studies Report				$45,000	
JAD---Site Development Analysis/Report				$20,000	
JAE---Engineering and Design Analysis Report with Dwgs					
	JAEA--Preliminary Designs			$75,000	
	JAEB--Detailed Designs			$150,000	
	JAEC--Engineering Support to Plan Formulation			$50,000	
JB----Socioeconomic Studies/Report					$62,500
JBA---Economic Analysis/Report					
	JBAA--Flood Damage Reduction Analysis			$30,000	
	JBAB--Socioeconomic Analysis Report			$10,000	
JBB---Social Studies/Report				$10,000	
JBD---Ability to Pay Report				$500	
JBE---Financial Analysis Report					

Table VII-1
Illinois River Ecosystem Restoration Feasibility Study
Cost Estimate

Activity Code	Task Description	Estimated Costs: Federal	In-Kind	Total Cost	Subproduct Total
	JBEA--Statement of Financial Capability			$2,000	
	JBEB--Financing Plan			$5,000	
	JBEC--Assessment of Financial Capability			$5,000	
JC----Real Estate Analysis/Documents					$82,000
	JCA---Real Estate Plan			$15,000	
	JCB---Gross Appraisal/Report			$25,000	
	JCC---Preliminary Real Estate Acquisition Maps			$30,000	
	JCD---Physical Takings Analysis			$3,000	
	JCE---Preliminary Attorney's Opinion of Compensability			$4,000	
	JCF---Rights of Entry			$5,000	
	JCG---All Other Real Estate Analyses/Documents				
JD----Environmental Studies/Reports					$1,530,000
	JDA---Documentation of Scoping Meetings			$25,000	
	JDC---Programmatic Environmental Impact Statement			$250,000	
	JDD---Coordination Documents with Other Agencies			$50,000	
	JDE---Environmental Resource Inventory Reports				
	JDEA--Restoration Needs Assessment (RNA)	$665,000	$35,000	$700,000	
	JDEB--Biological/Field Sampling Plan			$20,000	
	JDEC--Waterfowl, Fish, and Macroinvertebrate Sampling			$50,000	
	JDED--Identify Significance of Study Area			$50,000	
	JDF---Mitigation Analysis Report			$0	
	JDG---Endangered Species Analysis			$15,000	
	JDH---Section 404(b)(1) Analysis Report			$20,000	
	JDI---401 State Water Quality Certification			$10,000	
	JDJ---Record of Decision			$10,000	
	JDL---Statement of Findings (SOF)			$10,000	
	JDN---Other Environmental Documentation				
	JDNA--Water Quality and Sediment Sampling Report				
	JDNAA--Review of Existing Water Quality Data			$50,000	
	JDNAB--Sediment Sampling Contaminant Analysis			$50,000	

Table VII-1
Illinois River Ecosystem Restoration Feasibility Study
Cost Estimate

Activity Code	Task Description	Estimated Costs: Federal	In-Kind	Total Cost	Subproduct Total
	JDNB--Quantification of Ecosystem Restoration Outputs			$50,000	
	JDNBA--Habitat Based Assessment of Project Area			$100,000	
	JDNBB--Establish Baseline Level of Ecological Function Under Existing and Improved Conditions			$70,000	
JE	----Fish and Wildlife Coordination Act Report				$40,000
	JEA---District Coordination	$20,000	$0	$20,000	
	JEB---Preparation of Coordination Act Report	$20,000	$0	$20,000	
JF	----HTRW Studies/Report				$30,000
JG	----Cultural Resource Report				$100,000
	JGA---Site Survey Field Report			$9,000	
	JGB---Data Collection and Analysis Report			$28,000	
	JGC---Mitigation Plan Report			$58,000	
	JGD---Memorandum of Agreement			$5,000	
JH	----Cost Estimates				$90,000
	JHA---Study Cost Estimate Updates			$0	
	JHB---PED Cost Estimate			$15,000	
	JHC---Project Cost Estimate				
	JHCA--Preliminary Cost Estimates			$15,000	
	JHCB--Feasibility Level Cost Estimates			$30,000	
	JHD---OMRR&R Cost Estimate			$10,000	
	JHE---Baseline Fully Funded Cost Estimate			$10,000	
	JHF---All Other Cost Estimates			$10,000	
JI	----Public Involvement Documents				$210,000
	JIA---Public Meetings				
	JIAA--Study Initiation Public Open House			$27,700	
	JIAB--Study Mid-Point Public Open House			$27,700	
	JIAC--Study Conclusion Public Meeting			$30,400	
	JIB---Minutes of Public Meetings			$17,100	
	JIC---Public Comments Report			$15,000	
	JID---Newsletters				
	JIDA--Identify Affected Publics – Build/Maintain Mailing List			$5,700	

Table VII-1
Illinois River Ecosystem Restoration Feasibility Study
Cost Estimate

Activity Code	Task Description	Estimated Costs: Federal	In-Kind	Total Cost	Subproduct Total
	JIDB--Prepare Newsletters			$41,600	
	JIE---All Other Public Involvement Documents				
	JIEA--Public and Agency Coordination Appendix			$9,300	
	JIEB--Provide Assistance to Project Team			$5,700	
	JIEC--Attend Project Team Meetings			$4,600	
	JIED--Logistics for Feasibility Resolution Conf.(FRC)			$4,050	
	JIEE--Coordinate with District Public Affairs Office			$1,800	
	JIEF--Support to Plan Formulation			$19,350	
JJ----Plan Formulation and Evaluation Report					$805,000
	JJA---Project Management Coordination				
	JJAA--Study Coordination			$150,000	
	JJAB--In Progress Review (IPR) Briefing and Report			$20,000	
	JJB---Plan Formulation Support Technology				
	JJBA--Plan Formulation Site			$60,000	
	JJBB--GIS - Data Gathering	$20,000	$30,000	$50,000	
	JJBC--GIS - Analysis and Synthesis			$50,000	
	JJBD--GIS - Map and Summary Information			$50,000	
	JJC---Plan Formulation				
	JJCA--Identify Problems and Opportunites			$10,000	
	JJCB--Establish Without-Project Conditions			$40,000	
	JJCC--Formulation of Alts and Appl to Restoration Needs			$75,000	
	JJCD--Devel of Restoration Prioritization & Impl Framework			$75,000	
	JJCE--Formulation of Specific Site Restoration Projects			$30,000	
	JJCF--Cost Effectiveness and Incremental Cost Analysis			$30,000	
	JJCG--Plan Formulation Report			$75,000	
	JJD---Alternative Formulation Briefing (AFB)			$15,000	
	JJE---AFB Guidance Memo & MVD Approval Formulation Material			$0	
	JJF---Quality Assurance/Quality Control			$75,000	
JK----Draft Report Documentation					$85,000

Table VII-1
Illinois River Ecosystem Restoration Feasibility Study
Cost Estimate

Activity Code	Task Description	Estimated Costs: Federal	In-Kind	Total Cost	Subproduct Total
	JKA---Feasibility Review Conference (FRC) Documents			$5,000	
	JKB---Public Review Comments			$5,000	
	JKC---Project Guidance Memorandum (PGM)			$0	
	JKD---All Other Draft Feas Documents			$75,000	
JL	----Final Report Documentation				$23,000
	JLA---Division Commander's Notice			$2,000	
	JLB---All Other Final Feasibility Report Documents			$21,000	
JM	----Washington Level Report Approval	$50,000	$0		$50,000
JP	----Management Documents				$230,000
	JPA---A-E Contract Documents			$0	
	JPB---Coordination Documents			$5,000	
	JPC---Project Funds Control Documents			$75,000	
	JPD---Trip Reports			$10,000	
	JPE---Minutes of Technical Review Conference (TRC)			$5,000	
	JPF---All Other Management Documents			$15,000	
	JPFA---Executive Committee and PRB Coordination			$40,000	
	JPFB---Budget Preparation			$25,000	
	JPFC---PMP Preparation			$25,000	
	JPFD---Cost Estimates–Prep/Update/Coordinate			$15,000	
	JPFE---Budget Briefings			$15,000	
K	**-----Project Cooperation Agreement (PCA)**				
KA	----Initial Draft PCA Package				$12,600
	KAA---Initial Draft PCA			$7,000	
	KAB---Federal/Non-Federal Allocation of Funds Table			$1,800	
	KAC---PCA-Deviation Report			$1,000	
	KAD---PCA-Certification of Legal Review			$1,000	
	KAE---PCA-MSC Review Comments			$1,800	
TOTAL FOR ALL ACCOUNTS (BASELINE COST)			**$95,000**		**$4,875,100**
Cost Escalation/Inflation Contingency (7.5%)					$364,900

Table VII-1
Illinois River Ecosystem Restoration Feasibility Study
Cost Estimate

Activity Code	Task Description	Estimated Costs: Federal	In-Kind	Total Cost	Subproduct Total
TOTAL STUDY COST (INFLATED)					**$5,240,000**
TOTAL FEDERAL FUNDS REQUIRED					$2,620,000
TOTAL SPONSOR FUNDS REQUIRED (CASH + IN-KIND)					$2,620,000
	SPONSOR CASH				$2,525,000
	SPONSOR IN-KIND				$95,000

VIII. Quality Control Plan (QCP)

A. Introduction

The Rock Island District is responsible for ensuring that this report conforms to all current professional practices and standards. This task will be conducted by an internal technical review report, prior to its submission to MVD and HQUSACE. Policies and procedures defining the quality control/internal technical review process are specified in ER 1110-1-12, *E&D Quality Management*, 1 June 1993; EC 1165-2-203, *Technical and Policy Compliance Review*, 15 October 1996; the Rock Island District's *Quality Management Plan*, 1 September 1999; Memorandum CELMV-ET, Lower Mississippi Valley Division, Directorate of Engineering and Technical Services, Quality Control and Quality Assurance Guidance, 23 September 1995; and *LMVD Plan for Transition to Metric (SI) in Planning, Engineering, and Design*. A copy of the Rock Island District's *Quality Management Plan* and QCP will be provided to the non-Federal sponsor.

B. Quality Control/Internal Technical Review Responsibilities

The goal of the technical review process is to ensure that the report and its sub-components meet the technical standards and regulations of the Corps of Engineers. The Rock Island District is responsible for the independent technical review of the feasibility study and its products and will develop and implement a QCP for the project. The QCP includes the independent technical review of decision and implementation documents, consistent with established criteria, guidance procedures, and policy; and identifies how the District plans to ensure compliance with technical and policy requirements.

C. Technical Review Process

Technical review is part of the overall development of implementation and decision documents and is the systematic execution of actions, decisions, and reviews taken during the concept development, formulation of alternatives, and project design phases to ensure conformance with laws and Administration policy. An independent technical review is conducted for all decision and implementation documents and is independent of the technical production of the project/product.

The selected independent technical review methods are identified in this QC plan. The technical review team members have the proper knowledge, skills, and experience necessary to perform their tasks and are independent of the project team responsible for the development of the project/product. The QC/QA process as described herein will be fully documented in the feasibility study. Documentation and certification of technical/legal review will accompany the feasibility report that is submitted to MVD and HQUSACE for policy compliance review.

The Rock Island District will apply all appropriate technical and policy guidance in developing the Illinois River Ecosystem Restoration, Illinois, Feasibility Study. Since the District is responsible for both conducting the work and providing the technical review of the work, the technical review will be independent. Independent review will include review of all the technical work and products from plan formulation, environmental, economics, engineering, cost estimating, real estate, and other disciplines that are essential to achieving a quality feasibility report. A QC plan has been prepared for this product and is documented in this PSP. The QC plan includes the following items:

1. Discussion of the selected independent technical review option that identifies the review team members, qualifications, and rationale for selection.

2. Schedule of in-progress technical and/or policy reviews.

3. Description of the process for documenting decisions, issues, and issue resolution.

4. Discussion of the methods to be used to resolve significant technical and other policy issues.

5. Discussion of the lessons learned process.

6. Legal review of the decision document and associated NEPA compliance document by District Counsel.

7. Any issues that cannot be resolved within the District will be forwarded to MVD and HQUSACE for resolution.

C.1 Planning, Programs, and Project Management Division

Environmental Resources: Portions of work performed to produce the environmental analysis and NEPA document may be done using a contractor. As such, the quality control process will be in two steps. This first step will be by the contractor, who will conduct the review in accordance with their internal QA/QC procedures. A copy of EC 1165-2-203 will be provided to the contractor to ensure that their internal QA/QC procedures conform to the Corps of Engineers' requirements.

The second step in the QA/QC process will be performed by the Corps planning review team members, who will review the contractor's work to ensure that it conforms to the requirements set forth in the PSP and other Corps regulations. A POC for environmental work and cultural resources work and alternates will be appointed as necessary.

Economic and Social Analysis: Quality control and technical review of the economic, social analysis, and financial analysis work will be performed by the Chief, Economic and Social Analysis Branch or a designee. An alternate will be assigned at a later date if necessary.

Plan Formulation: Plan formulation and preparation of the Feasibility Report will be performed under the direction of the project manager. The Chief of the Project Management Branch will review plan formulation and serve as the leader of the technical review team. The Chief, Project Management Branch for compliance with policy will review the main report.

C.2 Engineering Division. The Engineering Division will review the draft Engineering Appendix. A back check review of the final engineering appendix will be conducted. The review team will consist of individuals from the following fields: civil design, environmental engineering, structural, geotechnical, cost estimating, hydraulics and hydrology. Corps of Engineers criteria will be used to judge the technical adequacy of the products and documentation will be accomplished by written comments, responses, and correspondence.

C.3 Review Process. Each technical element will schedule sufficient time for a technical review to allow their appendix to be submitted in accordance with the currently approved PSP. In

order to accomplish this, each technical element will conduct its quality control on a continual basis with each major sub-product serving as a checkpoint in the quality control process. This will ensure that any technical mistakes are found early and resolved while the material is fresh in the minds of those working on it. For work performed by a contractor, each contract scope of work will require several work progress updates and submissions prior to the submission of the draft report and final report. These progress updates will serve to ensure that the contractor is proceeding in the direction that the Corps wishes to pursue and raise any issues that may need to be resolved.

Checklists will be used in the quality control process to assist the reviewer, but will not be used to replace that person's technical expertise or judgment. The checklists are designed to assist the reviewer in ensuring that the report contains the minimum amount of material necessary to make decisions and that any conclusions drawn in the report are based on the information provided.

Each reviewer will document their comments on review sheets (NCR Form 44). At a minimum, each comment will refer to the page and paragraph in question, the nature of the problem, where guidance can be found that applies to the problem, and, if possible, a suggested solution to the problem. The comments and any checklist used will be returned to the person responsible for the product to resolve. Responses to each comment will provide, at a minimum, what was done to correct the deficiency and where the deficiency was corrected, or a justification for why the deficiency was not corrected. The package of comments and responses will be attached to the final submission as a sub-appendix. It is the responsibility of the section supervisor responsible for the product to review the comments and responses to ensure that all issues are resolved.

Each first-line supervisor has the responsibility for the day-to-day quality control of those they supervise. As such, they are directly responsible for checking the day-to-day work of their subordinates and resolving any issues that the review team members may raise.

C.4 Additional Quality Control Measures. In addition to the steps described above, three quality control (and/or in progress review) meetings will be held during the course of the study. The purpose of these meetings will be for the Branch Chiefs and other team members to gain an understanding of what the project team has produced and provide comments and raise issues at the appropriate time. The review team members will provide their written comments on the main report at this time. The three briefings are:

a. Without-Project Conditions

b. With-Project Conditions

c. Alternative Selection (Note: This briefing also will include participants from the Rock Island District's PRB, MVD, HQUSACE, the non-Federal sponsor, and Federal and State environmental agencies, as appropriate).

C.5 Approval of Quality Control/Internal Technical Review Plan. Approval of the quality control/internal technical review plan will be done concurrently with the approval of the PSP. Each person who is named in this plan as a reviewer or alternate will provide their acknowledgment of this responsibility on the attached form.

QUALITY CONTROL REPORT

ROCK ISLAND DISTRICT - PLANNING, PROGRAMS, AND PROJECT MANAGEMENT DIVISION

Illinois River Ecosystem Restoration, Illinois, Feasibility Study

1. I certify that the study and project review was performed and that the study and recommended project meet all Corps regulations and requirements related to water resources planning.

Planning, Programs, and Project Management Review Team

_____ _____
Date

Chief, Economic and Social
Analysis Branch

_____ _____
Date

Chief, Environmental Analysis Branch

_____ _____
Date

Archeologist

_____ _____
Date

Project Manager

2. I certify that the study and project review process required to be performed under my responsibility has been completed and the subject study and recommended project meet all Corps regulations, requirements, and customer expectations.

_____ _____
Date

Chief, Project Management Branch

STUDY/PROJECT REVIEW CERTIFICATION

PLANNING, PROGRAMS, AND PROJECT MANAGEMENT DIVISION

I certify that the study and project review process required to be performed under my responsibility has been completed and that the study and recommended project meet all Corps regulations, requirements, and customer expectations.

_____ _____

Date

Chief, Project Management Branch

_____ _____

Date

Chief, Engineering Division

_____ _____

Date

Chief, Real Estate Division

_____ _____

Date

District Counsel

_____ _____

Date

Chief, Planning, Programs, and
Project Management Division

_____ _____

Date

Colonel, Corps of Engineers
District Engineer

QUALITY CONTROL PLAN

ROCK ISLAND DISTRICT – PLANNING, PROGRAMS, AND PROJECT MANAGEMENT DIVISION

OVERVIEW, BASIC CONCEPTS, AND APPLICABILITY

I. Overview

This Quality Control Plan (QCP) has broad application to most of the Rock Island District's Planning, Programs, and Project Management Division General Investigations (GI) functions. This QCP may be expanded, contracted, or otherwise modified based on the risk, cost, complexity, and uniqueness of the effort being undertaken. However, this model and each variation is expected to:

A. Explain the concept of how the QCP is integrated with and complements existing structures such as the Project Review Board (PRB) and existing management tools such as Project Study Plans (PSPs) or Project Management Plans (PMPs) without usurping the functional responsibilities of PMs or their chains of command.

B. Establish a concept and process for identifying a specific set of assignments for an independent Technical Review Team not directly involved in the production of the work products to participate in the life-cycle progress of the study/project.

C. Provide a "checklist" or similar tool to aid the Technical Review Team in their mission of assuring that significant items and issues are not overlooked.

II. Basic Quality Control Concept

Quality control is assured by a multi-discipline, multi-layer, life-cycle approach. Successful Planning products are the result of the insights and expertise of a diverse array of professionals, including the active participation of local sponsors and representatives from the pertinent agencies. Work efforts are conducted either by the non-Federal sponsor, A-E, other districts, or by in-house technical staff. If the primary technical work is conducted outside the District, one layer of review will take place by the contractor before the report is transmitted to the Rock Island District.

The District Study/Project Team members will conduct a second layer review of the contractor's work products. The next layer of review involves the functional managers (branch or section chiefs) of the Project Team members to assure some degree of completeness, correctness, and consistency since a portion of the functional responsibility for the end-product lies with the technical worker's first line leader or supervisor. This first-line supervisor is intimately involved in the progress of the effort and will not serve as the Technical Review Team Member for his/her discipline wherever possible. Branch Chief and Division Chief level (overview/policy) reviews are also conducted and they tend to exhibit a greater degree of independence and objectivity than previous layers since they are not involved in the day-to-day production activities. This layer is routinely accomplished as Division Chiefs provide PRB recommendations and approvals. This QCP establishes a separate, independent Review Team as specified on a subsequent page.

The Quality Control Team (QCT) participates in the entire life-cycle of the study/project.

1. The QCT contributes to and reviews the PSP at its inception.

2. The QCT provides an intermediate review as major interim products/decisions are reached.

3. Specific interim points requiring QCT review are:

   i) Definition of without-project conditions.

   ii) Definition of with-project conditions.

   iii) Alternative formulation and screening of alternative plans.

4. The QCT will provide a thorough review of Draft and Final products and identify and resolve problems in conjunction with the Project Team before recommending PRB approval.

Written comments from the QCT will be addressed to the Project Team for resolution. These comments are compiled as part of the Quality Control Report to indicate the issues and concerns that were raised and addressed along the course of the study. Unusual issues or conflicts that cannot be resolved by the Study and Review Teams may be addressed to an appropriate resource in MVD for guidance.

III. Responsibility

The Review Team is required to certify the results of their review as indicated on the enclosed Certification Form within the Quality Control Report.

Project Team members, Project Managers, and Functional Chiefs still retain responsibility for the quality and timely execution of the study/project tasks in accordance with milestones, costs, and commitments as identified in the PSP. The Review Team provides ancillary quality control, not replacement of existing responsibility for technically accurate, high-quality work products.

The District PRB retains its responsibility for approving Rock Island District products. The QCP should enhance the quality of the District's work products and instill more confidence in PRB members as they improve such products.

IV. Technical Review Team

The Technical Review Team will focus on:

A. Assumptions.

B. Methods, procedures, and material used in the analysis based on the study/project scope.

C. Alternatives evaluated.

D. Appropriateness of data used and level of data obtained.

E. Reasonableness of the results, including whether the product meets the customer's needs consistent with law and existing policy.

V. Checklists

A checklist for review of Feasibility Reports is enclosed in the QCP. It is meant to be an available tool to assist the Review Team Member, not to replace his/her technical expertise or judgment (see next page).

VI. Planning, Programs, and Project Management Review Team Assignments

Standing assignments for the most common planning products have already been in place within Planning, Programs, and Project Management Division with a plan formulation technical specialist and a regional economist already fulfilling this quality control function. The plan for independent review of environmental products is to have a senior environmentalist/archaeologist with significant Corps experience, but with little or no involvement in working on the specific study's day-to-day activities. Specific team member names will be provided at the inception of the study as Study/Project Team and Review Team members are identified. Review team assignments for technical support outside of the Planning, Programs, and Project Management Division must be provided by those other offices at the appropriate time.

CHECKLIST FOR REVIEW OF FEASIBILITY REPORTS

1. Has the study been conducted in accordance with and fully responsive to the study authority?

2. Is the study area, as defined, reasonable and consistent with the study authority?

3. Have the areal extent and severity of the water resources problems and without-project conditions been clearly documented?

4. Are current findings consistent with prior phases of study? Have intervening external factors (such as regulation changes, significant storm events, etc.) jeopardized previous logic, analyses, and conclusions?

5. Have the assumptions and rationale for the without-project condition been explicitly stated and are they reasonable?

6. Are planning objectives clearly identified?

7. Were the views of non-Federal interests solicited and considered in the plan formulation process?

8. Have all reasonable structural and non-structural plans, including a no-action plan, been considered? Do they fully address the identified problems and needs?

9. Was the plan formulation analysis conducted in accordance with accepted techniques and appropriate guidelines and regulations?

10. Was the environmental work conducted in accordance with appropriate techniques, guidelines, and regulations?

11. Was the economic/benefit analysis conducted in accordance with accepted techniques, guidelines, and regulations?

12. Has the NED plan been identified? Is it the selected/recommended plan?

13. For environmental restoration efforts, was a cost effectiveness and incremental analysis accomplished? Was resource significance defined?

14. Is there a rationale for a locally preferred plan or non-NED recommended plan?

15. Does the recommended plan meet the customer's needs and has the position of the sponsor been explicitly conveyed?

16. Have upstream and downstream effects of the recommended plan been identified?

17. Have all known benefits been included in the benefit estimate? Have high-priority benefits been identified?

18. Have economic methodologies and assumptions been explained in sufficient detail?

19. Is the evaluation of each alternative based on the difference between the without-project and with-project conditions?

20. Have risk and uncertainty been addressed in accordance with ER 1105-2-101?

21. Has the necessary coordination been conducted and documented in accordance with the National Environmental Policy Act of 1969 (NEPA) and ER 200-2-2?

22. Have HTRW considerations been addressed?

23. Is the proposed project recommendation consistent with current administration policies?

24. Does the overall Planning report adequately display study assumptions and findings, as well as and clearly represent a firm basis for the recommendation?

PLANNING DECISION DOCUMENT
Technical and Policy Compliance Checklist

Name of Project:

SIGNATORY OR REVIEWING OFFICER	SUBMISSION RECOMMENDED FOR APPROVAL	DATE	REVIEW ITEM REF. NCR QMP	REMARKS/DOCUMENTATION
PLANNING, PROGRAMS & PROJECT MGMT				
PROJECT MANAGER			SPONSOR COORDINATION AUTHORITY FUNDING PDA PACKAGE PERMIT PACKAGE TECH REVIEW	
BRANCH CHIEF (REVIEW)			PROJECT SUFFICIENCY	
PM-R			ENVIRONMENTAL ANALYSIS (EA) NEPA, ENDANGERED SPECIES ACT FISH AND WILDLIFE COORD. ACT NATIONAL HISTORIC PRESERV. ACT CLEAN WATER ACT	
PM-R (REVIEW)			PROJECT SUFFICIENCY	
PM-A			ECONOMIC ANALYSIS	
PM-A (REVIEW)			PROJECT SUFFICIENCY	
ENGINEERING				
TECHNICAL MANAGER			DESIGN CONSIDERATIONS R.O.W. QUANTITIES/COST ESTIMATE INPUT HTRW ASSESSMENT	
SECTION CHIEF (REVIEW)			DESIGN/CONSTRUCTION SUFFICIENCY	
ED-C (REVIEW)			COST ESTIMATE SUFFICIENCY	
ED-G (REVIEW)			GEOTECHNICAL CONSIDERATIONS	
ED-H (REVIEW)			H&H CONSIDERATIONS	
ED-D			PROJECT SUFFICIENCY	
REAL ESTATE				
RE-A			REAL ESTATE ANALYSIS	
RE-A			R.O.W. COORDINATION CONTRIBUTED FUNDS COORDINATION DRAFT PCA	
RE-A (REVIEW)			PROJECT SUFFICIENCY	
RE - CHIEF			PROJECT SUFFICIENCY	
OPERATIONS				
OD - CHIEF			PROJECT SUFFICIENCY	
OFFICE OF COUNSEL				
OC - CHIEF			LEGAL SUFFICIENCY	
PLANNING, PROG & PROJ MGMT DIV				
PM - CHIEF			PROJECT SUFFICIENCY	
ED - CHIEF			PROJECT SUFFICIENCY	

THE PRODUCT SUBMISSION HAS BEEN REVIEWED FOR TECHNICAL AND POLICY COMPLIANCE AND IS RECOMMENDED FOR APPROVAL. TECHNICAL AND POLICY REVIEW ISSUES HAVE BEEN RESOLVED.

_____ (DATE)_____
CHIEF, PLANNING, PROGRAMS, &
PROJECT MANAGEMENT DIVISION

THE PRODUCT SUBMISSION IS APPROVED. THE ADMINISTRATIVE/REGULATORY REQUIREMENTS HAVE BEEN COMPLETED AND IMPLEMENTATION OF THIS PROJECT SHOULD PROCEED.

_____ (DATE)_____
COLONEL, CORPS OF ENGINEERS
COMMANDING

QUALITY CONTROL REPORT

ROCK ISLAND DISTRICT - PLANNING, PROGRAMS, AND PROJECT MANAGEMENT DIVISION

Illinois River Ecosystem Restoration, Illinois, Feasibility Study

Overview

This report synopsizes the Quality Control and Review Process to be employed during the conduct of the Illinois River Ecosystem Restoration, Illinois, Feasibility Study. In light of the changes in review functions on the Division and Headquarters levels in recent years, the responsibility for review of technical products rests with the District. Each operating Division in the District has developed its own functional procedures and identified its own Project Team and Review Team members for quality control of its areas of technical expertise.

Project Team and Review Team Assignments

Discipline	Project Team Member	Review Team Member (Name)
Project Management	PM-M Project Manager	
Plan Formulation	PM-M	
Economic Analyses	PM-M Economist	
Cultural Analysis	PM-M Archeologist	
Environmental Analysis	PM-M Biologist	
Real Estate	RE Realty Specialist	
Design/Eng. Coordination	ED Project Engineer	
H&H	ED Hydraulic Engineer	
Surveys	ED Land Surveyor	
Geotechnical	ED Geotechnical Engineer	
Cost Estimating	ED Estimator	
Environmental Engineering	ED Environmental Eng.	

QUALITY CONTROL REPORT

ROCK ISLAND DISTRICT - PLANNING, PROGRAMS & PROJECT MANAGEMENT DIVISION

Illinois River Ecosystem Restoration, Illinois

Documentation of Technical Review Process

Meetings Attended by Review Team

	Date	Review Team Member	Issue	MFR Attached
1				
2				
3				

Review Team Comments for Interim and Final Submittals

	Date	Review Team Member	Issue	Resolution
1				
2				
3				
4				

Additional Comments Attached

Key Items Addressed by Review Team

a) Validity of technical assumptions
b) Methods and procedures used in the analyses
c) Reasonable alternatives were addressed
d) Appropriateness of data used
e) Reasonableness of the results and responsiveness to customer needs

If a formal checklist has been used by the reviewer, it is attached.

QUALITY CONTROL REPORT

ROCK ISLAND DISTRICT - PLANNING, PROGRAMS, AND PROJECT MANAGEMENT DIVISION

Illinois River Ecosystem Restoration, Illinois

Certification by Review Team Members

I certify that the study and review process required to be performed under my responsibility has been completed and the technical work is generally in accord with Corps regulations, standard report requirements, and customer expectations.

Review Team Member	**Date**
_____	_____
_____	_____
_____	_____
_____	_____

QUALITY CONTROL REPORT

ROCK ISLAND DISTRICT - PLANNING, PROGRAMS, AND PROJECT MANAGEMENT DIVISION

Illinois River Ecosystem Restoration, Illinois

Endorsement by Office Chiefs

My staff and I have reviewed the report and the recommendations of the Study/Project and Review Teams. I endorse the report and recommend its signature by the District Engineer and its continued processing through the Corps approval process.

_____

Chief, Planning, Programs & Project Management Division

_____

Chief, Engineering Division

_____

Chief, Real Estate Division

_____

Office of Counsel

IX. Acronyms

A listing of the acronyms used in this PSP is provided below.

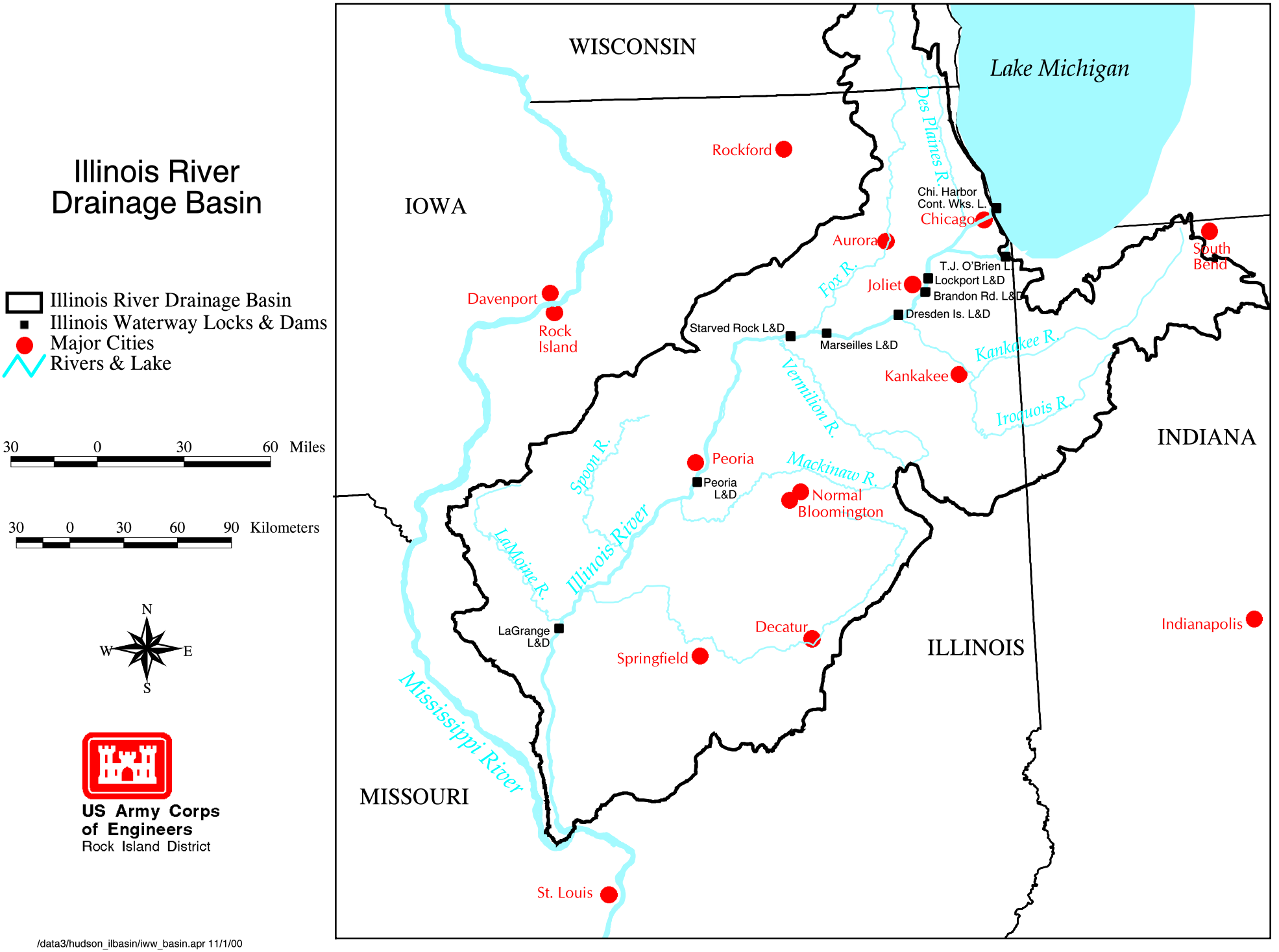
A-E	Architect-Engineer
AFB	Alternative Formulation Briefing
ASA(CW)	Office of the Assistant Secretary of the Army (Civil Works)
CEFMS	Corps of Engineers Financial Management System
CEMVR	U.S. Army Corps of Engineers, Rock Island District
CWBS	Civil Works Breakdown Structure
DNR	Department of Natural Resources
EA	Environmental Assessment
EC	Engineering Circular
ED	Engineering Division
EIS	Environmental Impact Statement
EM	Engineer Manual
EPA	Environmental Protection Agency
ER	Engineering Regulation
FCSA	Feasibility Cost Sharing Agreement
FRC	Feasibility Phase Issue Resolution Conference
FWCA	Fish and Wildlife Coordination Act
FWCAR	Fish and Wildlife Coordination Act Report
GI	General Investigations
GIS	Geographic Information Systems
HEP	Habitat Evaluation Procedures
HQUSACE	Headquarters, U.S. Army Corps of Engineers
HTRW	Hazardous/Toxic/Radiological Waste
IPR	In Progress Review
IRC	Issue Resolution Conference
ITR	Independent Technical Review
LCPM	Life Cycle Project Management
LERRD	Lands, Easements, Rights-of-Way, Relocations and Disposal Area
MFR	Memorandum for Record
MOA	Memorandum of Agreement
MSC	Major Subordinate Command
MVD	Mississippi Valley Division
MVR	Rock Island District
MWRD	Metropolitan Water Reclamation District
NED	National Economic Development
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NRCS	Natural Resources Conservation Service
OBS	Organizational Breakdown Structure
OC	Office of Counsel
OMB	Office of Management and Budget
OMRR&R	Operation, Maintenance, Repair, Rehabilitation and Replacement
PCA	Project Cooperation Agreement
PED	Pre-construction Engineering and Design
PES	Project Executive Summary
PGM	Project Guidance Memorandum
PM	Project Manager

PMP	Project Management Plan
PRB	Project Review Board
PROMIS	Project Management Information System
PSP	Project Study Plan
QCP	Quality Control Plan
QCT	Quality Control Team
RAM	Responsibility Assignment Matrix
RE	Real Estate Division
RED	Regional Economic Development
REP	Real Estate Plan
RNA	Restoration Needs Assessment
SACCR	Schedule and Cost Change Request
SHPO	State Historic Preservation Officer
SOF	Statement of Findings
SOS	Scope of Studies
TRC	Technical Review Conference
USACE	U.S. Army Corps of Engineers
U.S. EPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
WBS	Work Breakdown Structure
WLRC	Washington Level Review Center

APPENDIX A

Site Map

Illinois River Drainage Basin



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